Textile World

ESTABLISHED 1868

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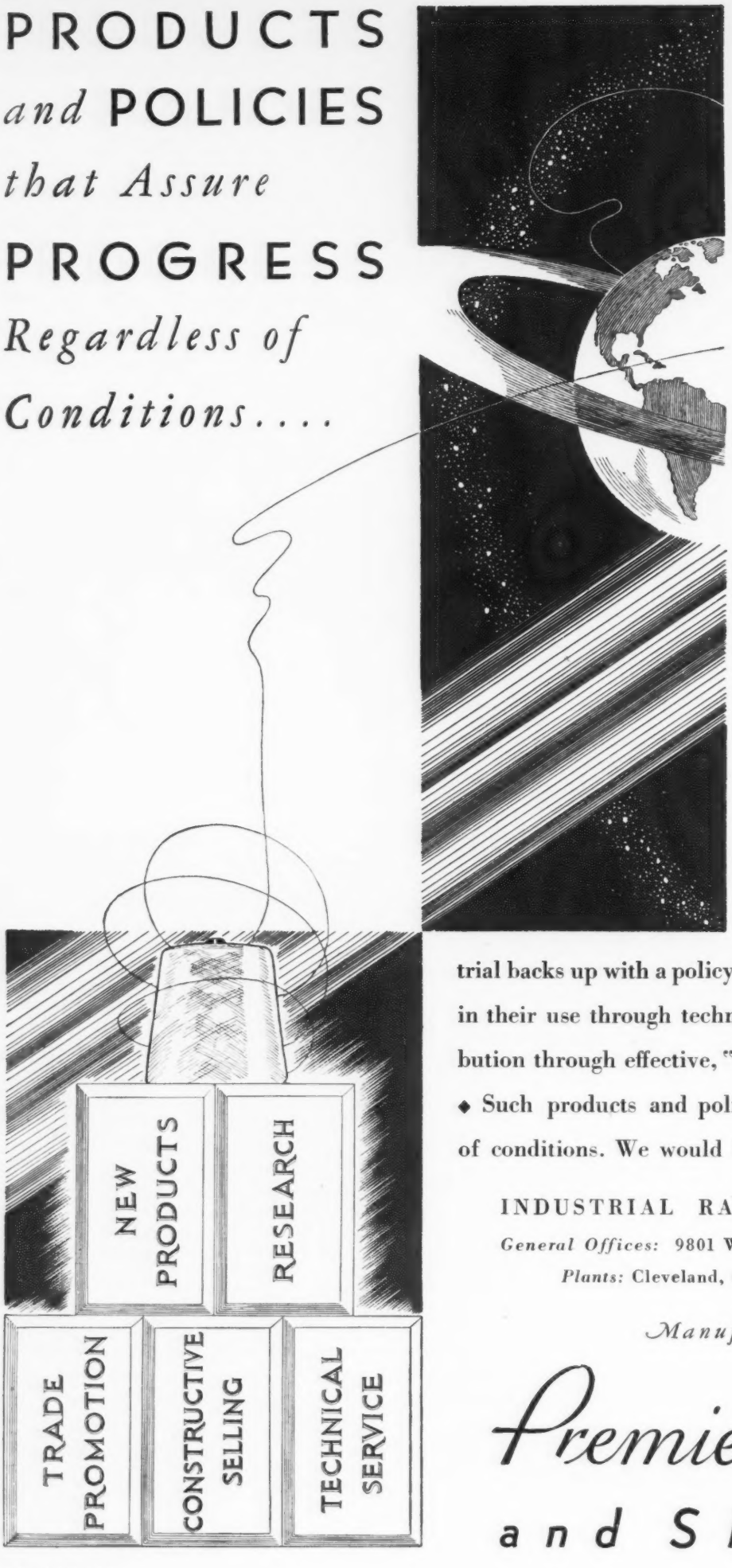
PRODUCTS *and* POLICIES *that Assure* PROGRESS *Regardless of Conditions....*



IN TIMES like these your sources of supply are of greater importance than ever. The quality of the products must be right, *consistently*, and the policies of the producer must be sound, helpful and constructive. ◆ Industrial supplies products of uniformly high quality to mills which stress quality rather than price alone. These products Industrial backs up with a policy of utmost cooperation, assisting in their use through technical service and in their distribution through effective, "custom-built" trade promotion. ◆ Such products and policies mean progress regardless of conditions. We would like to discuss them with you.

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Plants: Cleveland, Ohio; Covington, Virginia

Manufacturers of

Premier Rayon and SPUN-LO

June, 1932

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A Fighting Job Still Ahead

EVERYONE knows—or ought to know—by now that he is in a fight. There should be no illusions left.

No matter what the trend of business is during the next several months, there is a fighting job still to be done. If conditions fail to improve, or get worse, there will be a continuation of the grim fight for existence. If business starts upward, and keeps moving in that direction, there will be left a great reconstruction job to be done. Shattered hopes and broken morale will have to be mended. Just as war leaves its wake of devastation, so will this economic catastrophe leave behind it the ruin of dreams and ambitions of men and companies. They will have to rebuild from the ground up, just as must a community after an invading army has departed.

So the textile industry, in common with all other industries, faces months, and possibly years, of further struggle.

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In that struggle, it seems to us, there are certain definite principles which must be followed. We are thinking now, not of the broader principles on the basis of which it is hoped the industry will progress in future years, but of the emergent methods by which companies and individuals may survive both the depression and the reconstruction periods. These principles are few, and simple:

1. If there are still any plans or hopes or ideas of the "golden era" which have not been adjusted to the present situation, their immediate adjustment is the job of the moment. The only safe assumption to take is that, for the present, and for as much of the future as we can visualize now, we have got to live and prosper, comparatively, on an economic level at least no higher than prevails today. The affairs of each of us must be adjusted to that level.

2. Making and selling anything more at a loss is merely buying a ticket on a faster train to destruction. That process has been tried and has failed.

3. New products, new ideas, new methods, new and higher standards of quality, are needed today more than ever before.

▼

In applying these principles, one fundamental thought must be kept in mind. By and large, we are all in the same boat today. There may be a few individuals or companies left who have no cause for concern about the present or the future, but they are at best a very small minority.

Being in the same boat, manufacturer and employee, buyer and seller—even competitors—have got to fight this battle out together.

Eventually, we know, security and progress will return. The textile industry will once more be a profitable enterprise for manufacturer and worker. But reaching that goal calls for all the initiative, all the courage, all the business morality, all the mutual helpfulness, of which human nature is capable.

Consumer Viewpoint

BEST GUIDE FOR PRODUCTION

By Lionel J. Noah
President, American Woolen Co.

"I believe it is quite time that some of us availed ourselves of our prerogative to speak very frankly concerning the general situation of the textile industry," replied Mr. Noah in answer to our request for a statement of his views. In view of his dislike of publicity, we are particularly appreciative of the unusual opportunity of presenting his opinions herewith. Mr. Noah came into the textile industry recently from the retail field. Knowledge of that field, and of the consumer reactions manifest there, is the outstanding need in the wool goods industry as he sees it.—EDITOR.

THE wool goods industry is in the position of the sick man who has been treated with all kinds of medicines by all kinds of doctors—and grows steadily worse. If you will permit me, I am going to attempt a diagnosis. The main need just now is to find out exactly what is the matter. Once we know that, and face it sincerely and honestly, we will have won half the battle.

What is our trouble? We produce one of the essentials of life, a necessity second only to food and shelter. Yet we find ourselves completely demoralized. Confidence has gone. Belief in our product has gone. Common sense has gone. We are on a rampage of price-cutting. We are in the position of using prices as an axe to split open the heads of our competitors.

The whole thing boils down to three main needs. First, let us feel out the consuming market and produce specifically to meet its requirements; second, let us balance production and inventory with actual demand; and last but by no means least, let us endeavor to put the entire industry in position to make at least a small profit that will permit some return to long-suffering stockholders.

Closer Contact with Consumer

On the first point, we must establish closer contact with the cutter and the retailer. We must find out just what the consumer is buying, and anticipate his or her needs by keeping abreast of style trends. The old idea that the wool goods industry is a separate entity, an organization complete by itself, must be thrown overboard. It is essential that we should stress the broader thought. We are selling the consumer just as much as the retailer is, and our industry should be geared with that idea uppermost. Let us quit thinking only of looms and yarns. A loom isn't a mysterious something which must be kept running at all costs; it is an instrument which should either produce a fabric that consumers actually want—or stop running.

Following this thought, we must get the slant of the market we are selling to. We need outside ideas. If there is a man in the mill who has had experience beyond the limits of wool goods, he should be encouraged and developed; his viewpoint is valuable. Indeed, one of our most vital needs right now is a bit of the cutter and retailer psychology, the consumer angle.

The second question, production and inventory, is as important as the first. We are producing goods recklessly, ruinously, without half thinking whether the market can consume our output. We have a production obsession. Let us get some common sense on the point. Nobody is going to club us over the head, if we produce only for the actual needs of the consumer. If we think in terms of consumer needs, we are on the right track. It is not what is made, it is what we can sell—and sell profitably—that counts. If we cannot make a profit on our product, then let us shut our mills.

Solve Price Problems or Go on Rocks!

The third problem is the knottiest of all. But we must solve it, or the industry will go on the rocks. We have lost our perspective on prices. We talk of pet notions for improving market tone—and still we find ourselves cutting and re-cutting prices at the opening of a season without regard for actual costs. Still we sell at a loss. Still we hold up our hands in horror at the idea of an absolutely necessary advance of 10c. per yard. How absurd that is! Why, that difference is negligible when the consumer considers the price of the garment affected by these price differentials. Take men's wear, for instance; what man, looking for a $19.00 suit, would refuse it because the price might be $19.50 or $19.75? There again it is a question of getting the consumer viewpoint.

AND PRICE POLICIES

After all, there is room for all who, by the proper and intelligent conduct of their business, deserve to succeed. If there were not, the law of survival of the fittest would operate. But I prefer a better spirit, more in key with the times. We should substitute the idea of live-and-let-live for our present disastrous policy of dog-eat-dog.

I am going to close with a few words of caution. Merchandising conditions in the wool goods industry during the last two months have been appalling. We are hopelessly muddle-headed. The industry has been proud of its long history and tradition, but right now that tradition is our greatest handicap. We must forget tradition and get the 1932 mind. Our industry is in the worst condition of its history and this is due largely to the fact that we are living in the past. It is imperative that we get the modern viewpoint, and look ahead, if we are to survive at all.

Deflation Has Its Limits

We have gone through a period of drastic deflation in prices of raw materials and labor. This was undoubtedly necessary in the whole scheme of things, but how far can these deflations be carried beyond the present levels for our own future good? We cannot expect to deflate raw material prices and wages beyond the point of economic and human existence and escape the ultimate consequences.

Let us face this crisis and learn our lessons from it. If we do that honestly and thoroughly, then it will be the best thing that ever happened. Let us be honest toward our own business and toward our neighbors. Let us get away from this sell-at-any-cost idea. Right now, the industry is sales-crazy, and price-cutting crazy.

There isn't a mill in the country that is making an adequate profit this year. And what's ahead? The immediate outlook calls for the maximum of caution and curtailment. It is highly possible this year will be so bad that last year will look like a boom year. The answer is, we must economize more and by intelligent, creative ability find ways and means of stimulating consumption as a remedy for our present production problems.

It is a crucial period and we must face it like intelligent men. There is no need for undue alarm. There is need only for calm, cool judgment, good common sense, and the ingenuity and determination that has always brought us through previous crises. If we can develop these qualities we will find our own solution for the problem.

"LET US feel out the consuming market and produce specifically to meet its requirements;

LET US balance production and inventory with actual demand;

LET US endeavor to put the entire industry in position to make at least a small profit."

Run or Shut Down?

HOW TO ANSWER THAT QUESTION

By Ralph E. Loper

President, Ralph E. Loper Co., Textile Cost Engineers, Fall River Mass.

◆*Repeatedly, under present conditions, a textile mill executive runs up against the question: Is it cheaper for me to shut down, or to operate my plant on orders based on prices which can be secured today?*

Mr. Loper presents herewith what might be termed a yardstick for use in answering that question. Naturally, to be specific, he takes one construction, and the price prevailing on a certain day. However, the principle behind his tabulation may be applied by all textile executives to their own particular problems.—EDITOR.

WHEN making the decision to operate a plant or to curtail, the executive considers many factors beside the comparative losses in dollars and cents. If his plant is located in a village remote from other industries, he may be governed largely by the fact that the village is entirely dependent upon his plant for its income.

Although other factors may determine his final decision, he always desires to know as accurately as possible what his loss will be with the plant idle and how that loss compares with the loss or profit when running the plant and selling the goods at current market prices.

The accompanying tabulation illustrates a convenient way of analyzing and setting up this problem. Reasonable figures have been used in the tabulation but they do not represent the cost in any specific mill but are intended merely for an illustration.

Any mill manager interested in studying his situation along these lines should have his office prepare the actual figures for his plant, using the latest quotations on the fabrics he makes. The following suggestions and comments may prove useful to anyone interested in making such a study.

Labor and Salaries: Policies vary greatly among managements with reference to the payment of overseers and the office employees during periods of curtailment. It is usually necessary to consider each item separately, making sure that proper allowance is included for the necessary watchmen and for fire protection of the plant.

Insurance: The only important item under this heading which is affected by curtailment is the Employees' Liability or Casualty Insurance. This item depends largely upon the amount of the payroll and will therefore be nearly eliminated by curtailment.

Taxes: Very few textile mills are paying income taxes at the present time. This item therefore covers only the property and franchise taxes which are not affected by curtailment.

Supplies and Repairs: The actual expenditures required under this division will depend largely upon the policy of the management. Some may want to take advantage of the opportunity to make certain needed repairs which cannot be made to advantage when the plant is operating. In this case expenditures may be relatively large. In this tabulation it has been assumed that expenditures would be kept at a minimum and provision has been made for only essential items.

Power and Heat: If the period of curtailment covers cold weather, provision must be made for fuel for heating purposes. If the plant is dependent upon a steam pump for fire protection, insurance companies will require that a minimum steam pressure be maintained and allowance must be made for the fuel consumed.

If the mill purchases electric power the contract will usually specify a certain minimum monthly fixed charge. Some of the southern power companies have shown a willingness to forego some of these fixed charges during the unusual situation which faces textile mills this summer. However, these fixed charges must normally be provided for in a study of this sort.

Other Expenses: This item is intended to include any executive or office salaries which were not included with the labor item. It also covers the miscellaneous expenses such as travel, telephone and telegraph, village and school, office expense, etc.

Rent Credits: During periods of extended curtailment many mills which have their own villages do not ask their employees to pay rent. Some mills follow this practice for shorter periods of idleness. It has been assumed in making the tabulation that rents will not be collected when the plant is idle.

Cotton: In order to present a true picture, it is quite important that cotton be entered in the calculation at replacement cost. If a mill owns cotton at less than market quotations this profit should not be allowed to distort the picture shown by this comparison. The same would be true of any losses on cotton which the mill may own at higher than market prices.

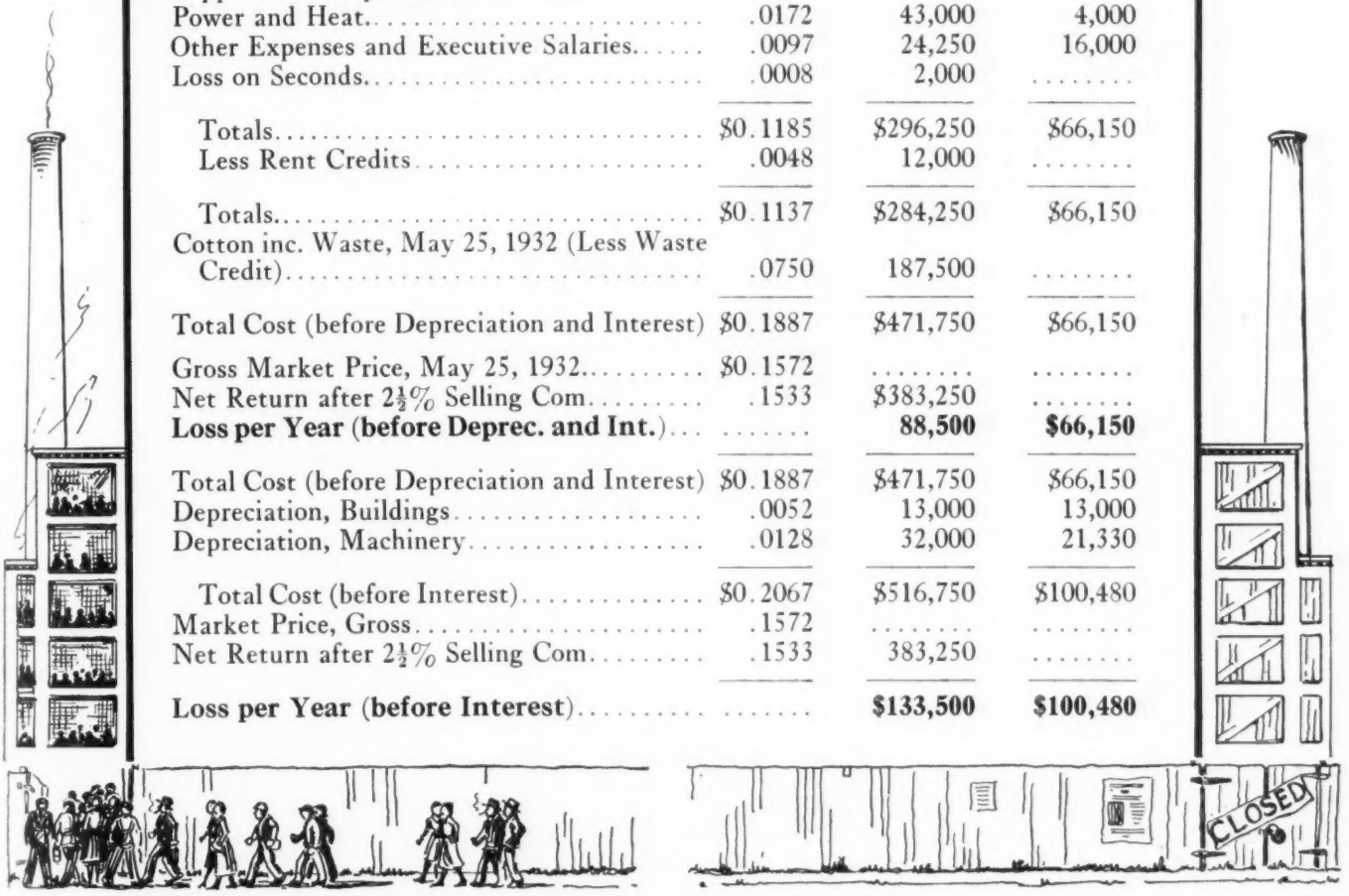
Loss Per Year: This item is first shown before depreciation or interest. Unless a mill is paying interest on bank loans the loss at this point will show the actual out-of-pocket expense. Mills which have interest to pay should include an item in each column covering any actual interest payments required. The expenditure for the interest during a period of curtailment would normally be less than when a mill is operating because less cash is then required to carry accounts receivable, inventories, etc.

Interest on Fixed Assets: While interest on fixed assets is an important item of cost which should not be lost sight of, it has not been entered in this tabulation because it would be the same whether the plant operates or curtails and would not affect the comparison.

Study of Fixed Charges During Curtailment

On 38½"-64x60-5.35 Print Cloth

Items of Cost	*Amount Per Lb. Full Time 55 Hours*	*Total Cost Per Year 2,500,000 Lb.*	*Total Fixed Charge Idle (Per Year)*
Labor and Mill Salaries	$0.0600	$150,000	$16,900
Total Insurance	.0015	3,750	2,000
Taxes	.0089	22,250	22,250
Supplies and Repairs	.0204	51,000	5,000
Power and Heat	.0172	43,000	4,000
Other Expenses and Executive Salaries	.0097	24,250	16,000
Loss on Seconds	.0008	2,000	.....
Totals	$0.1185	$296,250	$66,150
Less Rent Credits	.0048	12,000	.....
Totals	$0.1137	$284,250	$66,150
Cotton inc. Waste, May 25, 1932 (Less Waste Credit)	.0750	187,500	.....
Total Cost (before Depreciation and Interest)	$0.1887	$471,750	$66,150
Gross Market Price, May 25, 1932	$0.1572	.....	.....
Net Return after 2½% Selling Com	.1533	$383,250	.....
Loss per Year (before Deprec. and Int.)	.....	**88,500**	**$66,150**
Total Cost (before Depreciation and Interest)	$0.1887	$471,750	$66,150
Depreciation, Buildings	.0052	13,000	13,000
Depreciation, Machinery	.0128	32,000	21,330
Total Cost (before Interest)	$0.2067	$516,750	$100,480
Market Price, Gross	.1572	.....	.....
Net Return after 2½% Selling Com	.1533	383,250	.....
Loss per Year (before Interest)	.....	**$133,500**	**$100,480**



Depreciation: This item is intended to cover both depreciation and obsolescence. It is important that this be considered carefully and proper allowance made for local conditions if one is to present a true comparison.

When a textile mill is closed for an extended period, special care must be given to prevent rust from attacking card clothing and the polished surfaces of the machinery. Many experienced mill men feel that unless this is carefully done, idle machinery will depreciate just as rapidly as if running and properly cared for.

In October, 1930, the Treasury Department in Washington sent to each of their field divisions a letter dealing with depreciation and obsolescence. In it they recommend a rate of not more than 4% to cover depreciation and obsolescence on the machinery in the average mill operating under normal conditions during a single shift. They also suggest not more than 1% additional depreciation on the machinery when the plant operates two shifts. If experience has proven that running machinery two shifts increases the proper allowance for depreciation and obsolescence from 4% to 5%, it would seem logical to set up 3% to cover obsolescence and depreciation when the machinery is idle.

It will be noticed that in the tabulation, two-thirds of the single shift depreciation charge on machinery has been set up when the plant is idle, but the full depreciation on buildings has been used. Many executives will feel that smaller amounts would be sufficient. Each management should use its own best judgment in setting up a charge to meet its particular situation.

If the figures used in the tabulation represented actual costs in any print mill, then on May 25, 1932, that mill would have lost less money by shutting down completely instead of operating and selling its goods at prevailing prices.

The advantage to the mill in actual dollars paid out-of-pocket would have been $22,350 per year. The advantage to the mill after allowing for depreciation would have been $33,020 per year. If the mill was borrowing money and therefore had interest payments to make, the savings in both cases due to shutting down would have been increased. Furthermore, the allowance of 2½% selling commission is on the conservative side; some mills pay a higher rate and the differential in favor of shutting down would be increased proportionately.

Figures used in this tabulation were intended merely to illustrate a convenient method of analyzing the problem. One should not, therefore, attempt to draw conclusions from these results but should prepare similar figures covering actual conditions in his own plant.

A Major Operation—

TO PREVENT

BLEEDING TO DEATH

LAST FEBRUARY, in these columns, we told how, during the first four months of *receivership,* the ability of Manville Jenckes Co. to pay its debts out of current assets was improved by $383,800; and how an operating *profit* of $257,485 was netted during that period. Now comes news of more doings

—*Editor.*

AN 1826 date on a stone over the entrance to one of the mill buildings . . . Men ruthlessly smashing textile machinery and building up a scrap pile in the mill yard . . . Carpenters, painters, machine erectors and other workmen building up as fast as their colleagues could tear down . . . A peculiar mixture of destruction and construction; of old age and the new era.

That was the scene we witnessed last month at the Manville (R. I.) plant of the Manville Jenckes Co.

There was a staccato note to all these goings-on; an air of suppressed excitement. A major operation was being performed—and on an aged patient.

Briefly, this operation is of the type described editorially some months ago in TEXTILE WORLD under the heading "Shrink and Sell." Manville Jenckes is "shrinking" to a size compatible with present-day conditions and present-day demand. But the shrinkage is a scientific one.

Our interest in the scene at Manville extended far beyond the activities of this particular company since it was a flash view of what is being done in several other companies and what must be done, apparently, in many, many more.

Here is the picture:

As a result of the tearing down and building up, Manville Jenckes now has a single efficient unit at Manville comprising 100,000 spindles with auxiliary equipment and 3,560 looms—all modern; this consolidates the old Manville and Pawtucket plants with a total of approximately 273,000 spindles and 6,000 looms—some modern and some obsolete. In the move, every piece of modern equipment was conserved, with the exception of a number of cards and twisters. The plant at Pawtucket, comprising the Jenckes and Tamarack units, has been evacuated; at the time of writing request permission has been granted to offer it for sale.

Even broader "shrinkage" than this has been accomplished. As a result of other reorganization plans, the company has compressed an organization of seven plants, located North and South and operating on a variety of products in each plant, to four active, specialized units: the Manville plant, making fancy cotton goods and rayons; the Loray Mills Division at Gastonia, N. C., working on tire fabrics and yarns; the Bernon Mills at Georgiaville, R. I., and the High Shoals (N. C.) Mills, each producing plain cotton goods.

It is in the Pawtucket-to-Manville play, however, that we are most interested at this time. Here is the reason for this move, as told to us by George R. Urquhart, co-receiver with Zenas W. Bliss for the company:

A Bit of the Background

"Originally the plant at Pawtucket produced tire fabrics and yarns only. About two and a half years ago, the weaving of rayon goods was started there also. Of the tire fabrics produced by the company, all the Egyptian and some of the domestic were made at Pawtucket, while the Loray plant at Gastonia operated on domestic only. It was found impossible to keep Loray busy on domestic only, but the trade was not used to Egyptian fabrics made in the South.

"We decided that we were going to make all our tire fabrics in the South. Despite predictions to the contrary, we have been successfully making such fabrics there, out of Egyptian and Sak. cotton.

"Meanwhile the rayon goods end at Pawtucket had increased, and the all-cotton end fallen off. We decided to concentrate on rayons exclusively. Consequently we had at Pawtucket three units—a tire fabric unit, a cotton spinning unit, and a rayon weaving unit—of which only the latter was used, at an overhead expense of $100,000 a year before a wheel was turned.

"The answer was obvious. We decided to concentrate at Manville the best equipment, of the two plants, for making fancy cottons and rayons. As a result, we have at that plant 100,000 modern spindles, 2,500 cotton looms and 1,050 rayon looms—all automatic, and 100 damask looms, practically all automatic."

Concentration at Manville, instead of at Pawtucket, was logical. The former plant has a modern weave shed, capable of housing nearly 4,000 looms, and an efficient hydro-electric plant.

The move to Manville was as carefully planned and executed as if an entirely new plant were being erected. The buildings have been thoroughly modernized. For example a new floor was laid in the basement of one of the units; a new opening and picker room has been provided; single-process pickers have been installed; all equipment has been re-located to insure an efficient flow; a complete experimental unit has been installed; every inch of the interior has been painted.

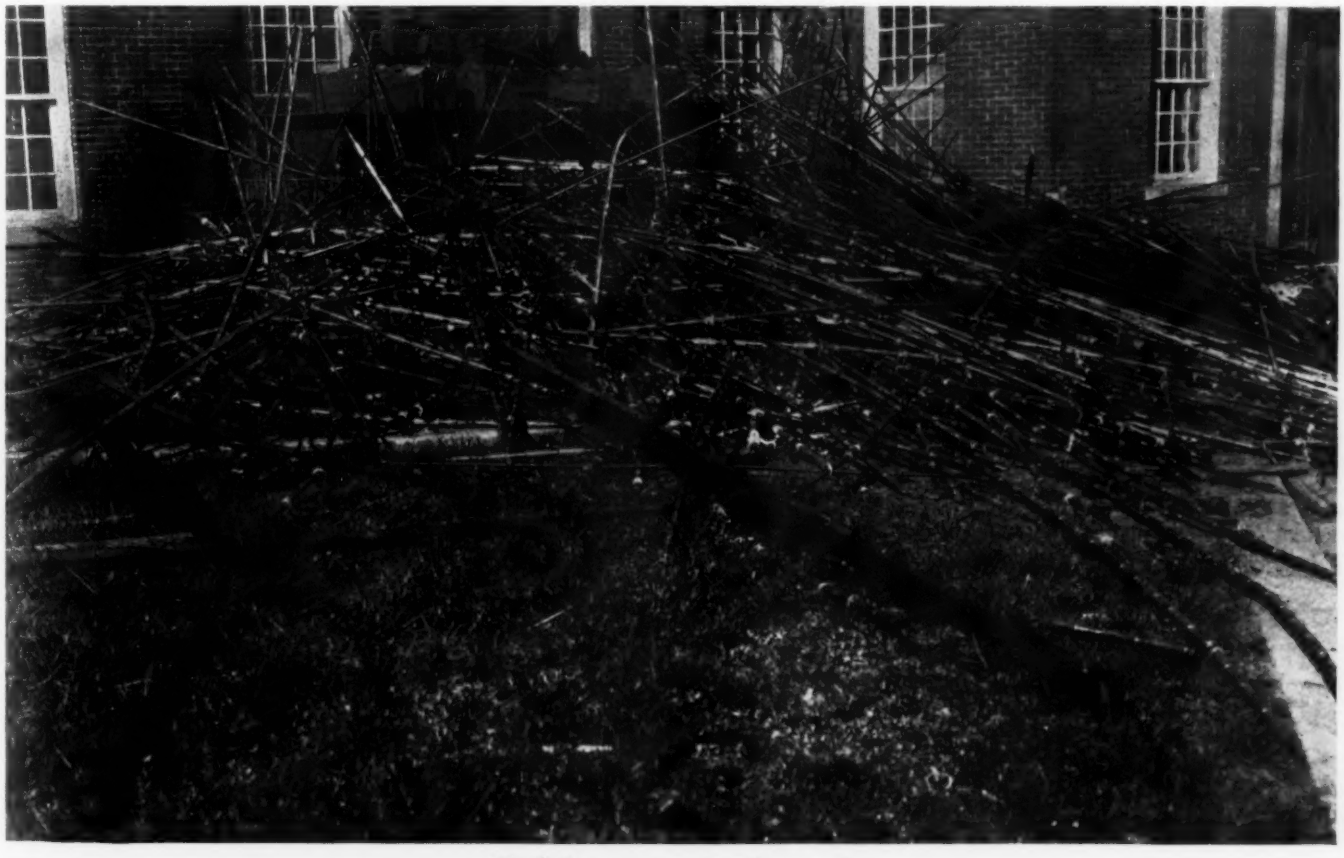
What It Means

An important point comes out of this case-study. Often similar moves are proposed within individual textile companies, and the following objection raised: What's the use, since we can't sell a plant even if we evacuate it?

The answer, at Manville Jenckes at least and undoubtedly at many other plants, is simple. The company will save $250,000 annually in overhead and operating costs, even if it doesn't sell its Pawtucket plant—and will have a far more efficient organization to boot. Too little thought is usually given to the duplicating expenses in operating staffs, supervision, power, heating, and other items.

At any rate, Mr. Urquhart and Gov. Bliss, the receivers, are confident that the operation will be successful. Their opinion on this point was expressed by the former as follows: "The manufacturer operating with old spinning frames and non-automatic looms is going to bleed to death."

Against this possibility, a little bleeding during a carefully-performed operation seems a small price to pay.



"Building up a scrap pile . . ."

Hedging Cuts Loss

ON INVENTORY FROM $203,250 TO $2,350

◆ *There have been many comments on the workability of the wool top futures exchange, pro and con. The example of a typical (but of course hypothetical) worsted mill given shows the results of the last year's operation both with the use of hedging and without the use of hedging. Using actual market prices, it is found that hedging operations would have compensated almost entirely for the inventory loss occasioned by lower wool prices. The wool top market is basically sound. All that is needed to remove some of the present flaws is greater patronage, but even now it can be of real use to the wool man.*

ON June 1, 1932, a worsted manufacturer called for his account books determined to find the difference in his profits between operation during the last year, *with* the use of wool top futures exchange and operation *without* use of the exchange. The following are the essential facts and figures:

Volume of business done for the year ended June 1, 1932, was approximately $3,000,000. Starting with clean fine staple territory wool, the plant made its own tops and had its own spinning, weaving and finishing departments. Average inventory was valued at $725,000 and consisted of raw wool, stock in process and finished goods, representing, on a poundage basis, 1,000,000 lb. of clean content wool. Monthly inventory figures on poundage basis, together with market values of clean wool at date of inventory, were as follows:

June 1, 1931.	900,000 lb.	@ 64c. per lb.
July 1, 1931.	1,200,000 lb.	@ 62c. per lb.
Aug. 1, 1931.	1,100,000 lb.	@ 62c. per lb.
Sept. 1, 1931.	1,000,000 lb.	@ 62c. per lb.
Oct. 1, 1931.	900,000 lb.	@ 61½c. per lb.
Nov. 1, 1931.	1,000,000 lb.	@ 59c. per lb.
Dec. 1, 1931.	1,000,000 lb.	@ 59c. per lb.
Jan. 1, 1932.	900,000 lb.	@ 58c. per lb.
Feb. 1, 1932.	1,000,000 lb.	@ 57c. per lb.
Mar. 1, 1932.	1,100,000 lb.	@ 56c. per lb.
Apr. 1, 1932	1,000,000 lb.	@ 53c. per lb.
May 1, 1932.	1,000,000 lb.	@ 47c. per lb.
June 1, 1932	900,000 lb.	@ 42½c. per lb.

Taking into consideration the prices at which wool was bought, and the prices secured for fabrics in relation to raw wool price, the inventory loss for the 12 month period was $203,250. During the same period the manufacturing profit was $153,000, leaving a net loss of $50,250 if the manufacturer made no use of the futures exchange.

Before taking up the figures resulting from the use of the futures exchange, it must first be remembered that the picture given is a simplified one. Actually, the manufacturer would not operate in monthly jumps, but would make changes more frequently as his inventory varied. The theory of hedging is to keep sold in a future month as many pounds as are carried in inventory throughout the plant. Thus, if a purchase of raw wool increases the inventory, an equivalent number of pounds is sold in a future month; if a sale of cloth reduces the inventory, an equivalent number of pounds is bought on the futures market to reduce the amount of the hedge through cancellation of some of the previous sales. While a more accurate hedge can be made by figuring on a dollar value of clean content wool, and a dollar value of top futures reduced to clean content, hedging pound for pound as outlined represents an easy and accurate method of avoiding inventory losses.

Here Is What Happened

A simplified schedule of operations would be as follows:

1. June 1, 1931. Inventory is 900,000 lb. of wool distributed throughout the plant, whether raw wool, stock in process or finished goods. To hedge this, 180 contracts (each contract representing 5,000 lb.) are *sold* on the wool top futures exchange. As each time a hedge is switched it costs a commission, the contracts are placed as far ahead as judgment indicates. In this case, 180 March, 1932, contracts are sold because March is an active month (an important point as sales and purchases must be executed and there must be a market). The price is 72.00c. per lb. (Naturally, it would be unwise to jump in and sell so many contracts on one day, but in a simplified picture it is presumed that it can be done over a short period.)

2. July 1, 1931. A large purchase of wool that looked like a good buy took place during June. Consequently, the inventory has now jumped to 1,200,000 lb. To take care of this 60 more March contracts (300,000 lb.) are *sold* at the market price of 73.70c. per lb.

3. Aug. 1, 1931. Inventory drops to 1,100,000 lb. due to good cloth sales. To take care of the difference of 100,000 lb., 20 March contracts are *bought*, thus cancelling 20 of the contracts previously sold. Price 74.50c. per lb.

4. Sept. 1, 1931. Inventory drops another 100,000 lb.; 20 March contracts are *bought* @ 72.00c.

5. Oct. 1, 1931. Practically no wool has been bought and inventory drops to 900,000 lb. Additional 20 March contracts *bought* @ 66.00c. per lb.

6. Nov. 1, 1931. Normal purchases of wool, coupled with poor cloth sales, raise inventory to 1,000,000 lb. To take care of increase, 20 March contracts *sold* at 68.00c. per lb.

7. Dec. 1, 1931. No change in inventory so no change in commitments.

8. Jan. 1, 1932. Inventory has been allowed to drop to 900,000 lb. at year-end. To compensate for decrease of 100,000 lb. it is necessary to *buy* 20 contracts @ 67.20c. per lb. At this point it seems advisable to move the hedge forward to another month than March. Consequently, all the March sale contracts that remain outstanding, 180, are cancelled by *buying* 180 March contracts @ 67.20c. per lb. (Actually, the switch would not be made all at once, but distributed over January and February.) To hedge the 900,000 lb. inventory it is now necessary to *sell* 180 July contracts, (once again the hedge is put forward in an active month). Price for July is 67.20c. per lb.

9. Feb. 1, 1932. Inventory increased by 100,000 lb. Additional 20 July contracts *sold* @ 68.50c. per lb.

10. Mar. 1, 1932. Poor cloth sales again increase inventory by 100,000 lb. making a total of 1,100,000 lb. Additional 20 July contracts *sold* @ 68.00c. per lb.

11. Apr. 1, 1932. Despite poor cloth sales, wool purchases have been cut so that inventory drops 100,000 lb. To compensate, 20 July contracts *bought* @ 63.00c. per lb.

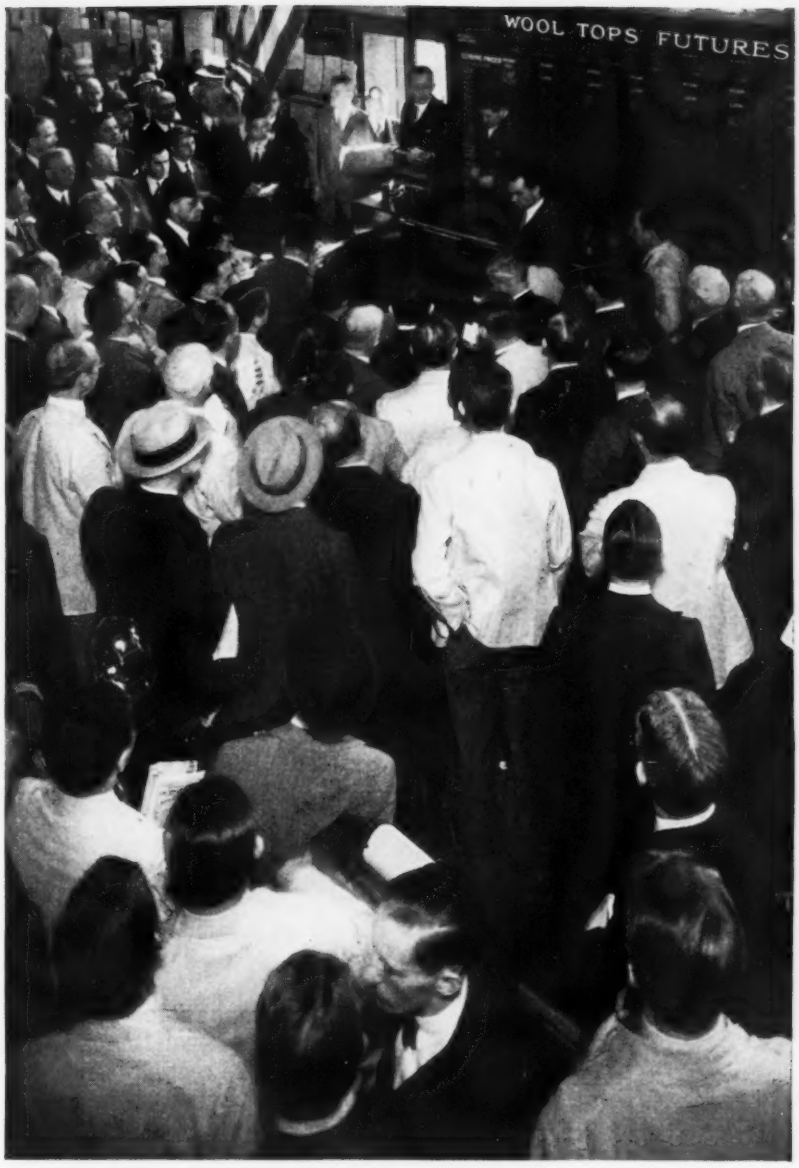
12. May 1, 1932. No change in inventory so no change in hedge.

13. June 1, 1932. Back at the end of a year. To figure position it is presumed that all July sale contracts outstanding, 200 in number, are cancelled by *buying* 200 July contracts at the market price 53.00c. per lb.

The following calculations give results:

Sold	*Total Value*
June 1. 180 March contracts, 900,000 lb. @ 72.00c.	$ 648,000
July 1. 60 March contracts, 300,000 lb. @ 73.70c.	221,100
Nov. 1. 20 March contracts, 100,000 lb. @ 68.00c.	68,000
Jan. 1. 180 July contracts, 900,000 lb. @ 67.20c.	604,800
Feb. 1. 20 July contracts, 100,000 lb. @ 68.50c.	58,500
Mar. 1. 20 July contracts, 100,000 lb. @ 68.00c.	68,000
Total	$1,678,400

Bought	*Total Value*
Aug. 1. 20 March contracts, 100,000 lb. @ 74.50c.	$ 74,500
Sept. 1. 20 March contracts, 100,000 lb. @ 72.00c.	72,000
Oct. 1. 20 March contracts, 100,000 lb. @ 66.00c.	66,000
Jan. 1. 20 March contracts, 100,000 lb. @ 67.20c.	67,200
Jan. 1. 180 March contracts, 900,000 lb. @ 67.20c.	604,800
Apr. 1. 20 July contracts, 100,000 lb. @ 63.00c.	63,000
June 1. 200 July contracts, 1,000,000 lb. @ 53.00c.	530,000
Total	$1,477,500



Trading board, Top Futures Exchange

Gross profit on hedging operations (value of contracts bought minus value of contracts sold) $200,900.

The loss on inventory, due to depreciation of wool prices, was earlier figured to be $203,250. Subtracting the profit made on hedging operations leaves a net loss on inventory of only $2,350. To arrive at the profit figure for the year it is also necessary to subtract the cost of the hedging operations. The commission to execute each contract is $30 for a "round turn," that is, both selling and buying. The number of contracts thus executed during the year was 480, at a total cost of $14,400

Taking all the figures into account the net *profit* with hedging operations equals the manufacturing profit of $153,000, less the inventory loss difference of $2,350, less $14,400 commissions, or $136,250. Without hedging the net *loss* was shown to be $50,250. The difference is $186,500.

Primarily, the cost of hedging operations can be regarded as insurance. While the actual value of the inventory listed was about $725,000, this included stock in process and finished goods which had added value. As the hedging was done on a clean content wool basis, figuring the average inventory for the year at the average price of fine staple territory the value was $540,000. To protect this minimum investment, $14,400 in commissions was paid, which puts the rate, on an insurance basis, at 2.6%.

To carry an average of 200 contracts the margin necessary is $500 per contract, or $100,000. As interest is usually received on margin accounts it is not necessary to charge interest on investment as part of the cost.

It can be argued that the figures given show up well because the year was one of declining wool values. However, no matter whether raw wool rises or falls, hedging divorces inventory gains or loses from manufacturing. Actually, few of those who use the futures markets steadily are completely hedged all the time. If the market looks poor everything may be hedged, while if the market seems due for a rise little of the inventory may be hedged. These are matters for individual judgment.

There are various details of a minor nature that have been omitted in this article as they can best be left to the broker handling the account. Thus, it is the broker's job to give the manufacturer advice on the best month to put the hedge into, when to switch, etc. If hedging still seems a mysterious process to many, the mystery can be easily dispelled by a little study.

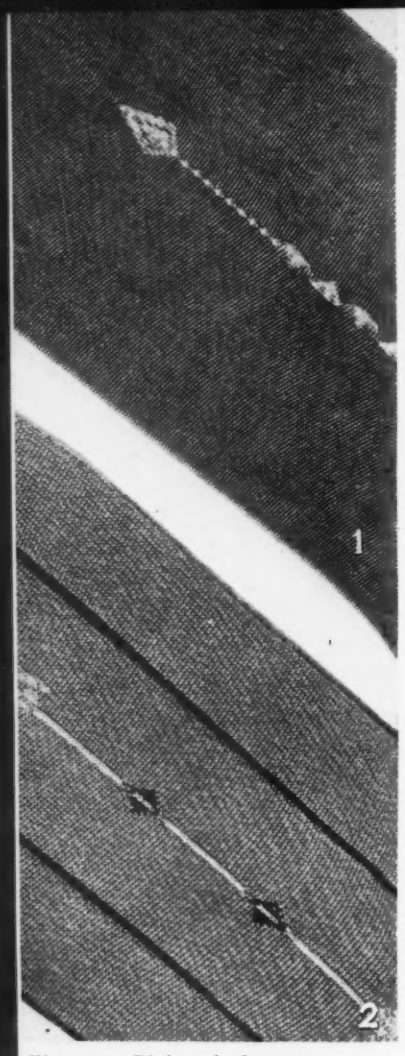


Fig. 1. Plain clock pattern
Fig. 2. Combination of clock with solid vertical stripes

Knitting Half Hose

TO MEET RAPIDLY CHANGING STYLES

By Charles F. Smith
Drexel Knitting Mills Co., Drexel, N. C.

◆ *Before the advent of novelty hose there were three main essentials to the manufacture of hosiery—financing, producing, and selling. Today there are four, the new item being styling. Mr. Smith explains how this is influencing knitting technic.*

THE problems confronting the manufacturer of men's fancy half-hose are multiplying daily from the viewpoint of both designing and knitting. Let us first analyze the various types of patterns and effects made on the automatic machines, which produce the rib top with turned welt transferred to the body of the hose.

The first type of fancy sock to be made on the automatic machine was what is known as a plaid, consisting of vertical and horizontal stripes. The vertical stripes were obtained by using needles with back-set hooks wherever verticals were desired and using needles with forward hooks in the balance of the needle cylinder. Naturally it was necessary to have a plated fabric in order to get the vertical effect. It was also necessary to have contrasting colors in the body. The needles having the back-set hooks actually reverse-plated the fabric at that particular point; but the attachment, being very limited from a pattern standpoint as well as giving several mechanical difficulties, eventually largely gave way to a type of reverse-plating of wider pattern range.

The next development in fancy equipment on the automatic machine was a two-step sinker reverse-plating device. This in turn gave way to a five-step device, which is in general use today. This device is not selective in so far as being able to control two or more steps at the same time is concerned.

The floating-stripe type of fabric, as exemplified by the so-called spiral machine, next absorbs our attention. The first development along these lines on the automatic machine was a thirteen-step affair having a pattern mechanism similar in action to the one described above as applying to the reverse-plating machine. By this it is meant that the mechanism was not wholly selective A later development in the floating-stripe field was an attachment allowing the use of as many as 25 steps, each step of which was wholly selective.

The so-called imitation wrap has been a logical development from the floating-stripe type of fancy. The floating-stripe pattern effect is gained by knitting a plated fabric consisting of two contrastingly colored yarns, and causing the plated yarn to be eliminated from the fabric, leaving only the backing yarn to be knit. The imitation-wrap effect is gained by knitting a fabric of either plated, twisted, or solid material and introducing an additional yarn into the fabric, eliminating it everywhere except where a pattern effect is desired. A late development in this field is an imitation wrap known as a color within a color.

Another development closely following the above-mentioned attachments has been the addition of the reverse-plating attachments to the floating-stripe machines.

There is one more type of novelty made on the automatic machine which cuts any considerable figure in the market today. This type is known as three-color plating and is manufactured entirely on the floating-stripe machines. The fabric itself differs from the average fabric in that three yarns are plated one over the other. rather than just two. The three-color effect is gained by first floating just the plating yarn, leaving a plated fabric on the needles consisting of the middle yarn over the backing yarn. This produces one color showing in the fabric different from the fabric color itself. The third color is made to appear by floating both the plating and middle yarns, leaving only the backing yarn on the needles. An off-shoot from this device is the mixture of imitation wrap and floating stripe in the same fabric.

Let us next analyze the various types of patterns which can be made on the transfer type of machine having standardized attachments. The first attachments available were the plaids, which were produced in a similar manner to those made on the automatic machine. While this type of pattern has practically disappeared from the market, as far as transfer machines are concerned, a good many subsequent attachments have been developed which still use the original stepping drum.

The next development in the transfer equipment was the floating-stripe type of work, consisting of vertical stripes and an extra step with which it was possible to insert an extra dot in the fabric wherever desired. The original attachment was elementary and its use for this purpose is obsolete today, although it is still being used and is producing an improvised imitation wrap which will be mentioned later. The 13- and 25-step, floating-stripe patterns are also available in the transfer machine. The production of floating-stripe

merchandise manufactured as such today on the transfer machines is negligible as compared with the automatic.

In the reverse-plating field the first attachment available was a sinker device consisting of four steps, the control of which was more or less elementary but which is still being run today, although it might be considered that it has since been combined with other attachments. The next development in this field was an eight-step needle device upon which individual control eventually was obtained. This is being extensively used today. The twelve-step sinker reverse-plating device was developed at a rather late date to get into extensive production as far as half-hose is concerned and the 48-step so-called jacquard was deemed more or less impractical due to cost of changing patterns and slow production.

Imitation-wrap merchandise makes up a fairly good percentage of the fancy socks produced on transfer-type machines. The color within a color has been developed on this type of machine, and a great many goods are produced having imitation wrap with reverse plating.

While the three-color plating device was originally developed on the transfer-type machine, it differed from that used on the automatic machine in that both the floating-stripe idea and reverse plating were used in producing the desired effect. This type of work is not being extensively used, the attachments being used mainly in producing imitation wrap and reverse plating.

We now come to the genuine wrap stripe, which can only be made, in the opinion of the writer, on the transfer type of machine. The wrap machine has been developed along two lines; namely, the panel type and the individual-needle type. The panel type can be made in extremely fine gauges (as fine as 300 needles) and is equipped with high-spliced heel and double-sole feature. The individual-needle type is limited in scope, as compared to the panel type, in every other respect except pattern. It has to be, by nature, a coarse-gauge machine (not over 200 needles); and as yet no high-spliced heel and double-sole attachment has been developed for it. It is limited, due to its coarse gauge and its slow production, to the making of high-priced lisles or wools.

The makeshift equipment in general use today falls into three classes, the first of which can be considered bootleg equipment. By this is meant machine-company equipment which has either been reproduced in the mill itself or by an outside machine shop. In the writer's estimation this type of attachment is generally unsatisfactory.

The next type of makeshift equipment in general use consists of machine-builders' attachments which have been altered in an endeavor to secure wider range of patterns. This type of attachment usually requires considerably finer adjustment and often ends in grief. A notable example of this particular type of attachment has been the subdivision of the elementary floating stripe and dot attachments, creating four steps out of two and reversing the principle to imitation wrap, plus the addition of the reverse-plating attachment on the same machine, subdividing the four steps into six.

The third type of makeshift equipment consists of attachments developed in the mills and either built there or in outside machine shops which the machine builders are not in a position to supply. Notable examples in this field have been the appearance on the market of two-feed tuck-stitch goods with pattern effects as well as variations of the genuine wrap type of work.

In considering the various constructions in general use today in the fancy half-hose field, we can divide them into two general lines, the first of which is the plated construction. A list of the various combinations of yarns in this field follows: (1) rayon over cotton; (2) acetate over cotton; (3) rayon over acetate and vice versa; (4) mercerized over acetate; (5) rayon over various twists (silk and rayon, rayon and acetate, silk and acetate) and vice versa; (6) silk over rayon and vice versa.

The other type of construction is the solid type consisting either of a solid end of yarn or a twist, which is practically always used with either imitation or real wrap. The popular constructions in this class are as follows: (1) mercerized, (2) rayon, (3) acttate (usually left white for pastel effects), (4) pure silk, (5) various twists (acetate and cotton, acetate and mercerized, acetate and rayon, silk and rayon).

Originally the only effects to be gotten in the cross-dyeing field in wrap work were light-colored tops, heels, and toes. Due to the fact that at first only sulphur-dyed mercerized yarn was available for wrapping, the sulphur-dyed colors used were always heavy shades; and cross-dyeing effects were always comparatively light colors.

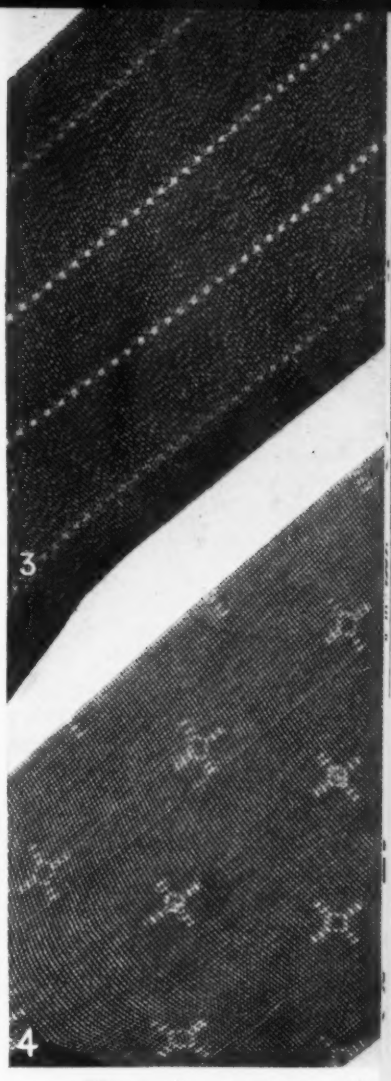


Fig. 3. Panel pattern with broken vertical stripes. Fig. 4. All-over pattern with staggered figures

An innovation in the wrap field was made by the introduction of what is known as immunized mercerized yarn. Its use, however, in the fancy half-hose field is limited to the imitation-wrap type of work.

The third type of yarn used to make wrap work is resist-dyed spun silk. This is the only yarn which to date has proved generally satisfactory for use on the genuine wrap machines. It has an extremely high tensile strength and can be resisted against all dyestuffs except those used in dyeing the animal fibers.

There are four main types of patterns which are illustrated in the accompanying photographs. Fig. 1 illustrates the plain clock type, which can be obtained on any type of machine having three or more steps. The second general type of pattern is a combination of clock and some form of pattern effect and is illustrated in Fig. 2. The clock can be combined with solid vertical stripes or with broken vertical stripes or panel effects, or it can also be combined with a staggered all-over effect. The third general type is known as the panel type, and a sample is illustrated in Fig. 3. In the panel type fall not only the solid vertical stripes but also all broken vertical effects which produce a straight vertical line.

The fourth pattern effect is called the all-over and is shown at Fig. 4. This type of effect invariably consists of staggered patterns scattered throughout the body.

Backed-Cloth Design . . .

ADDING BODY TO WOOL FABRICS WITHOUT SACRIFICING APPEARANCE

By R. A. C. Scott

◆ *This is the first of a series of useful articles on backed, double, and treble fabrics of various types. We believe that nothing so practical and valuable has previously been written on the subject and that many readers will find it desirable to preserve the entire series permanently in their scrap books.*

THE main purpose of employing backed, double, treble, etc., principles of construction is to increase the warmth-retaining qualities of a cloth and at the same time to admit of greater weight and body than can be acquired in a single structure without impairing the fine textural appearance of the face. It will be readily realized that heavy single cloths can be made only by the use of thick yarns with a comparatively small number of ends and picks per inch, a construction which naturally is bound to result in a somewhat coarse-appearing fabric. Therefore, by means of the principle of interweaving extra filling or warp, or both, on the underside of a cloth, the desired weight may be obtained without materially affecting the fine textural appearance of the face.

Besides the weight consideration, extra threads are employed for ornamental effects alone or for the combined purpose of increased weight and decoration. By using an inferior quality of yarn for the extra threads—i.e., backing yarns—in order to give a heavier texture, the resultant economy is quite apparent.

Backed cloths may be constructed either by the extra-warp or extra-filling principle, the former having two series of warp threads and one series of filling threads and the latter two series of filling threads and one series of warp threads. In the case of double cloths, two series of both warp and filling threads are employed, and in like manner treble cloths employ three series of each. Again, it is possible to arrange the construction so that different series of warp and filling are of unequal numerical value; e.g., three series of warp and two series of filling, etc.

It is most important that the extra warp or filling threads on the underside of the cloth be not only properly stitched to the face, but that the binding points be entirely invisible from the face side of the cloth. Briefly then, all warp backing threads should be stitched to the face where the face warp floats appear on either side; and similarly, the filling backing threads should be stitched where the face filling floats appear. It will thus be seen that the face weave employed largely determines the binding arrangement or order of the warp and filling ties. There are four distinct orders of distribution in general use.

1. Twill order—suitable for all twill face weaves.
2. Sateen order—adaptable for weaves of this class, and also suitable for loose binding of twill weaves.
3. Plain—used for firmer orders of binding.
4. Irregular order — suitable for weaves of irregular formation.

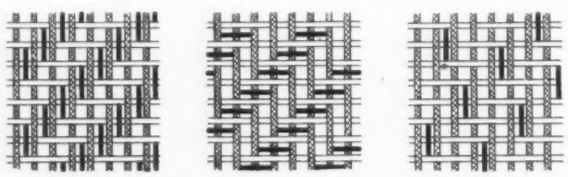


Fig. 1

Fig. 2

Fig. 3

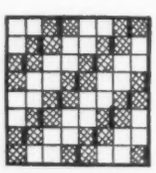


Fig. 1a

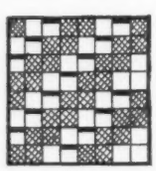


Fig. 2a

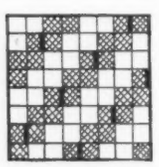


Fig. 3a

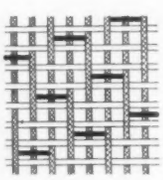


Fig. 4

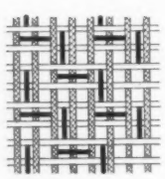


Fig. 5

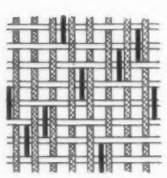


Fig. 6

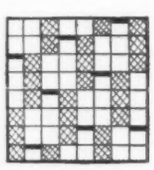


Fig. 4a

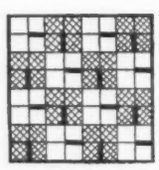


Fig. 5a

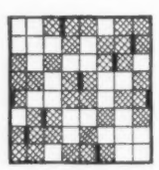


Fig. 6a

The plans in Figs. 1a to 6a and their corresponding flat views, Figs. 1 to 6 inclusive, illustrate the four orders of stitching. The shaded parts in every case represent warp floats, and the black marks between the squares show where the backing threads float over the face threads and of course coincide with the stitches shown in the respective flat views. Plan Fig. 1a and flat view Fig. 1 are two-up, two-down twill showing the warp-twill order of stitching. Plan Fig. 2a and flat view Fig. 2 are same weave, showing the filling-twill order of stitching. Plan Fig. 3a and flat view Fig. 3 are same weave, but illustrating the warp-sateen order of stitching. Plan Fig. 4a and flat view Fig. 4 are three-up, five-down, move-three weave showing the filling-sateen order of stitching. Plan Fig. 5a and

flat view Fig. 5 are two-up, two-down basket weave, illustrating the plain order of stitching, showing both warp and filling methods of binding. Plan Fig. 6a and flat view Fig. 6 are broken or irregular weave, illustrating the irregular warp order of stitching.

It is important that as even a distribution as possible of the binders or stitchers over the repeat area be adhered to and that at the same time the same number of stitches be obtained on each thread of the series that is employed for stitching. When using the twill order of stitching, care should be taken to see that the stitches fall equally on each warp or filling twill line. Should this not be strictly adhered to, adjacent twill lines will appear different from each other.

Fig. 7, which is the same plan as 1a but with the stitches falling on alternate warp twills of the weave, illustrates this defect very clearly. Again, avoid running the twill order of stitching in opposite direction to face twill; otherwise an indistinct cross-twill or diamond effect will appear in the cloth.

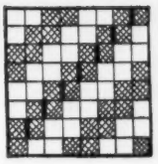


Fig. 7

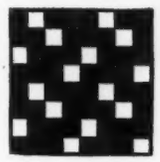


Fig. 8

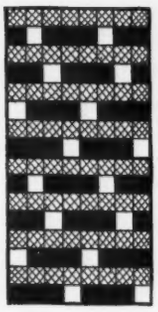


Fig. 9

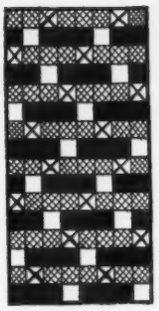


Fig. 10

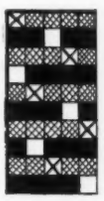


Fig. 11

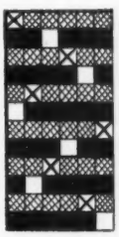


Fig. 12

Fig. 13

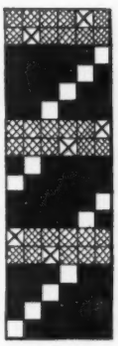


Fig. 14

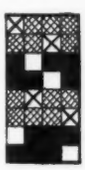


Fig. 15

In both warp- and filling-backed cloths, the order of stitching determines the weave on the underside of the cloth. Therefore, if it is desired to have the back similar in appearance to the face, it would be necessary to use either the same weave as, or a similar weave to, the face weave. When a loose back weave—such as the sateen order of intersections—is employed, a softer-handling and more pliable cloth will result.

Filling-Backed Cloths

The standard orders of arranging the picks in filling-backed cloths in looms with changing boxes at each side are: (1) one face to one back; (2) two face to one back; and (3) three face to one back. In looms with changing boxes at one side only, the first two arrangements may be replaced by two face to two back and four face to two back respectively.

It is much more convenient to indicate filling up than warp up in illustrating the method of designing backed effects, so in the accompanying designs all weave marks will represent filling floats.

By way of simplifying the construction of these designs Figs. 8, 9, and 10 illustrate in proper sequence the system employed. The face weave at Fig. 8 is the broken-crow filling flush, and the picks are arranged one face to one back. In Fig. 9 the position of the backing picks is indicated by the lighter shading, and the face weave is indicated by the solid marks. In Fig. 10 the stitches are inserted on the backing picks as shown by the crosses, which it will be noticed are covered on each side by a face float. Moreover, it will be further noted that the stitching corresponds to the broken order of the face weave, thereby making the under side of the cloth an exact duplicate of the face effect.

Other examples of filling-backed designs, in which the same weave is formed on both sides, are illustrated in Figs. 11 and 12. These various weaves form a distinct class of constructions which are chiefly used for heavily felted cloths, using a woolen filling and a cotton or any cheap-fibered warp. It is also customary to use a much thicker filling than warp and to insert more picks than ends per unit space, which, after the fulling and napping processes in the finishing department, completely conceal the warp.

Figs. 11 and 12 are the five- and six-thread filling sateens on both sides of the cloth arranged one face to one back. Fig. 13 shows the four-thread filling crow twill on face and the broken-crow or four-thread filling sateen on back, arranged two face to one back. Similarly, Fig. 14 is formed with the six-thread filling twill one-up, six-down, move-one on face and the six-thread filling sateen on back arranged four face to two back. In Fig. 15 we have the broken-crow, filling-flush weave on both back and face arranged two face to two back.

Suitable weaving particulars for the design at Fig. 10 would be as follows: 2/30s cotton warp, 44 ends per in., 75 in. in loom, 1 3/4-run woolen filling, 56 picks per inch; for the design at Fig. 12, 2/30s cotton warp, 50 ends per inch, 78 in. in loom, 1 3/4-run woolen filling, 64 picks per inch. The difference in the number of ends and picks is due to a looser type of weave employed in Fig. 12. Therefore the same rule applies in the setting of backed cloths as in single cloths. In like manner a greater shrinkage takes place in weaves of the sateen order, which must be taken care of in loom width. The average shrinkage is from 20% to 30%.

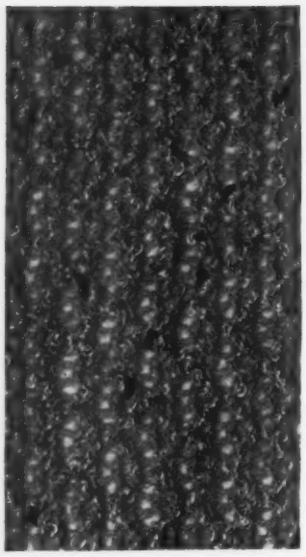
By using two colors in the filling, one for the face and another for the back, a cloth is produced in which the two sides are differently colored. This is very effective for the development of the high-colored and the better grade of blankets.

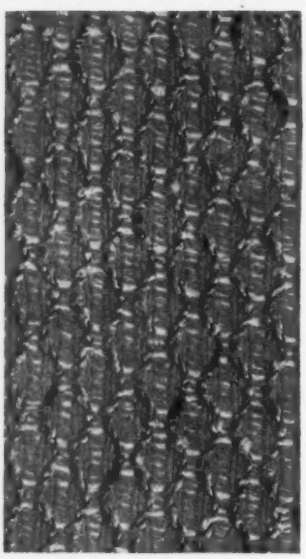
The Next Instalment

The second section of this discussion, to appear in an early issue, will discuss filling-backed twills and basket weaves and filling-backed, warp-faced weaves. This will be followed by warp-backed cloths.

Following Fashion

By Frances Cushing Hall





Aberfoyle Nuancelle with its French inspiration, a knitted wool fabric above

"HOW can I make money?" is the basic problem of all business endeavor. "Will it pay?" is its ever-present companion and must be considered whenever a new idea is contemplated. Correct fashion does pay and therefore helps to make money for the manufacturer. Knowledge of what fashion is and whence it comes, is definitely profitable.

Fashion is simply the style of anything which the public is desiring at the moment, and is therefore continuously changing. Fashion is dictated by the people and not by the manufacturers. Try to sell something the public does not want and you will easily prove this. The manufacturer must see that his goods are what the public wants, or, in other words, they must be "in fashion." Some years ago, before rapid intercommunication, a style was the fashion in the city at an earlier date than in the country. When this was true a manufacturer could dispose of goods which were too late for the city fashion in the country where they were still the fashion. Now the whole nation gets the fashion at about the same time. Starting and stopping production at the right times is therefore of utmost importance to the manufacturer. By intelligent planning he can have goods ready for peak demand and avoid unsalable carryovers when the fashion has passed.

Must Know His Market

First of all the manufacturer must know the particular market to which he caters. If he deals directly with the retailer, this is easy; but if he sells to a converter or to another manufacturer, it may be a little more difficult. Either way, knowledge of the market is a vital necessity. Consider a manufacturer making women's dress goods selling to garment manufacturers. The goods must be of one quality and design if they eventually go to the wealthy section of the public who buy in smart specialty shops, whereas if sold in shops catering to the $2,000-a-year and lower group, the goods must be of another type. These are extremes, and of course similar knowledge is just as important for the many grades between. It is the taste of the public to whom he sells to which the manufacturer must cater, and their desires which he must understand, if he would be a success.

There is no one, from the spinner to the manufacturer of the finished product, to whom the necessity of knowing his public does not apply. Gray goods manufacturers may say that the converter who buys from them tells them what he wants and they make it. However the gray goods concern, which is able to prove, either by showing samples or by intelligent discussion, that it is able to make the new weave demanded by fashion, will get the business from the converter. To do this the gray goods manufacturer must know the public to whom the goods go to judge what is wanted.

Whence the Fashion Ideas?

After determining the public which is served, it is next most important to determine from whom they get their ideas of fashion. Many of the high fashions in women's wear garment models come from Paris, dress materials from France, men's wear from London, household fabrics from Germany and Austria. Not all high styles are originated in those places, but the idea of the style is most likely to appear there. After the style has appeared, it is adopted by individuals who like to try new things and to whom money is no object for they may quickly discard the style if they do not like it. When a style has become popular with such people, others a little more conservative take it up and it becomes a fashion for the smart set. From them it spreads on down the line, moving into volume selling and being copied in a less expensive way until it reaches the lowest price levels. Copying the *idea* of a fashion is quite different from copying individual manifestations of it.

The problem for the manufacturer is to have his goods ready for delivery to his customers when the fashion of these goods is the fashion that these customers desire at that time. No less important is to have all these particular goods sold when the fashion has passed from the group to which he caters, for there is no profitable sale of goods out of the fashion. To keep up to this standard it is necessary to know what is going on in the world and what people are thinking as well as to keep close track of the fashions in one's own particular line. There is much talk of the power of public opinion—here is a place where it is supreme.

How a manufacturer can determine long enough in advance to be sure that his product will fit into the fashion picture when it is ready for the market, is the all important question. The only way in which this can be accomplished is to know the fashion trends by following the news of the source and the acceptance of each fashion along the line it travels to completion.

The rates at which fashions move vary tremendously,

BY INTELLIGENT PLANNING AND USE OF DATA, PAYS IN PROFITS

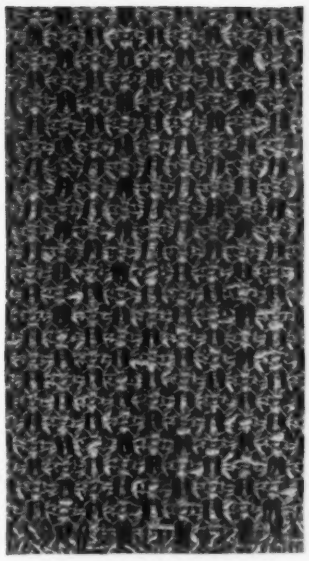
but are consistant in their course. Color novelties in women's wear are usually rapidly moving fashions. A color accepted in Paris as a fashion is quickly copied into all prices of material within a short time. The acceptance of Spanish Tile last fall is an example. There are also more conservative color trends which travel slowly. The great popularity for brown in the last few years, gradually changing to a stronger desire for blue this year, is one of these. This difference in the speed of change must always be considered in determining the time for the production of an article. The speed for a novelty is more rapid than that for a more fundamental trend.

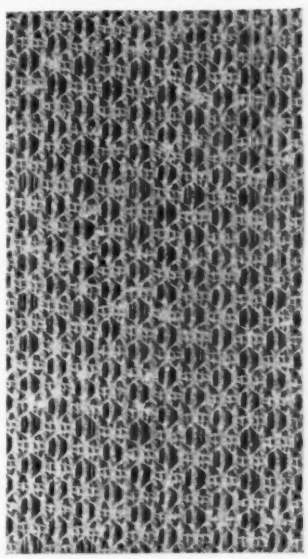
To determine the public a mill serves and to discover from whom that public takes its fashion ideas is not difficult, but to be ready to serve those customers with the fashion they want when they want it, is a problem not so simply worked out. It is possible, however, to eliminate much guess work and therefore make the percentage of failures considerably less. For this purpose it is necessary to have reliable data from all sources where there may be developments along the particular line involved. These sources should include those places where fashions start, where they are designed for high style, where they are used, where designed for mass selling, where used in mass, and finally where sold at reductions because the fashion is past. The data should include design, color, texture, material, quantity sold, price, speed of travel from one price range to another, general acceptance by a group, etc. These accumulated data give a complete picture of the fashion from its conception to its completion. There are other necessary properties of a piece of merchandise besides fashion correctness, but none is more important.

Examples of Fashion Success

Three examples which demonstrate that production of fashion merchandise pays are given.

Cannon towels, for example, have enlisted fashion as a most profitable cooperator. Through 1928 and early 1929 the desire for color in the home was growing in the fashion consciousness of the public. To meet this demand Cannon Mills put out colored reversible towels in simple designs. This was an innovation in the towel world, but it met with great success. It was no chance jump, but the well-thought-out result of one who had followed the trend of fashion in household furnishings and knew when the public was ready for this new but natural development. The first designs were conservative, in keeping with public demand. The next year, however, there was a change to more modern and spectacular designs which in turn were in harmony with the fashion trend of that year. The latest line of Cannon towels shows more conservative type of design, Empire, with deepened color which is now so fashion-right. This clearer, deeper color is now found in all household furnishings. Cannon Mills had felt the trend far enough ahead to be ready for the demand when it came. This firm also realized the trend of fashion toward better packaging when it brought out, several years ago, an attractive package of towel sets.





Aberfoyle Jerselle with its French inspiration, a wool and rayon fabric, above

Botany Worsted Mills, where fashion is part of the daily routine, have made a great success of their Morocanette for women's spring coats. This fabric lives up to the fashion requirements in texture, weight, ability to tailor well, and color range, and so it deserves its popularity. The crepe weave gives the desirable rough and dull surface and yet is practical, for it does not pick or pull on wearing. Its sheerness and warmth also are true to fashion yet practical. The manufacturer saw far enough ahead that the trend was for sheer wool fabrics with rough surface to have samples ready last fall so that coat makers might have coats ready for spring.

Galey & Lord's success with their cotton tweeds and lacy weaves has been deserved as they have followed fashion and produced good fabrics which are right. In 1929 they watched reports from Paris, the fashion source, which showed interest in sheer wool goods of fancy weaves. This development was repeated in succeeding reports, so Galey & Lord went to work to try similar weaves in cotton. They first tried a smooth cotton in a tweed effect, but were not satisfied and in the spring of 1930 started definitely to make fancy, rough, and sheer cotton meshes. That fall they met success for the Palm Beach trade. Their popularity continued and increased for the summer of 1931. They are now still popular. New styles which have been put out for the current summer season show more delicacy which is quite in line with the mode. Lacy wool fabrics, some of them knitted, have been the inspiration for many of these weaves but the resulting cotton fabrics—sometimes with a rayon touch—have individuality enough to pass on their own merit.

Fashion has proved a great asset to these three firms, and can do a similar beneficial job for many others.

Payment Curves Upward

By M. G. Berg

General Manager, Ajax Hosiery Mills, Phoenixville, Pa.

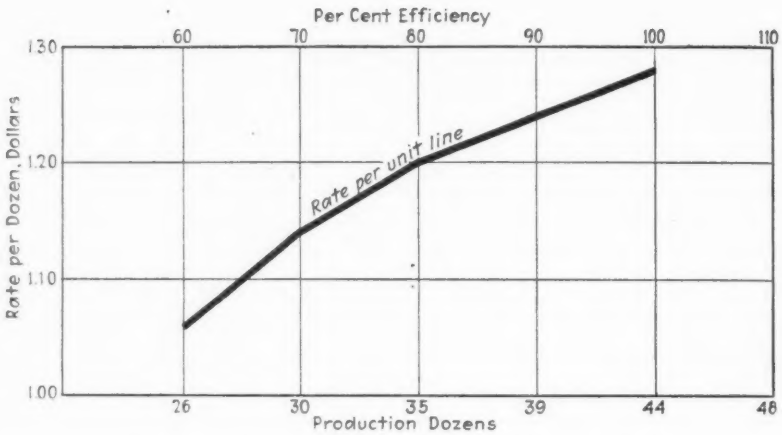


Chart F. Cost per unit for style shown in Fig. 3

"This plan seems contrary to those advocated by most industrial engineers," remarks the author of this article, "in that it has an upward curve of payment. It has been the theory for some time that . . . the cost per unit should decline as the production advances in order to expand the market for the product." Mr. Berg explains the advantages of the upward curve and tells why it is working out successfully in his plant.

THE use of time studies for setting rates appears to be the most practicable method. Proper time study in itself is a science. The most common method employed is the observation plan with a stop-watch. Whether or not you desire to set your rates through piecework or any other plan, a time study gives a good basis for calculation. With this time study, which gives the efficient production possible, the second figure, the basic rate, enters into the calculation. Fig. 1 shows an observation sheet of a time study, the columns showing the continuous and intervening time. There are several studies made up, of course, before an average is struck. Fig. 2 shows a make-up sheet, based on the time study of Fig. 1, and establishes the number of dozens required at 57½ and 56 hours. The study itself divides the job into four distinct parts: the actual running time, which is the time that the machine is in operation; the service time; the contingency allowance; and the silk and yarn allowance.

Basic Rate

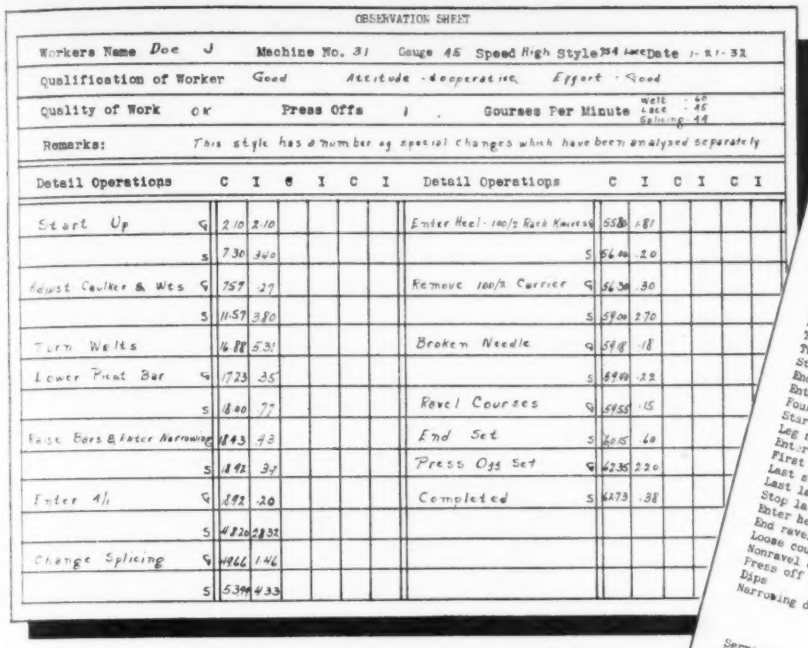
By "basic rate" we mean, of course, the amount of money that can possibly be made and taken home in the envelope each week. At the very outset of any wage-payment plan, the management has to determine just how much remuneration at a certain degree of efficiency it wishes to have the employee receive. This should be a fair wage. As the skill increases, naturally the earning power also increases until we have a set-up in the full-fashioned hosiery mill of a differential basic rate, which takes into consideration each gage of machine and the difference in the types of jobs, such as a single, double, and multiple. In conjunction with this can also be employed the apprentice system, whereby a part of the basic rate is paid until the apprentice reaches a certain stage in his career.

The basic rate is usually considered the amount of remuneration possible to earn at 100% efficiency. Through time study, this efficiency is determined, and a task is set up which is the requirement for the basic rate. If you desire to have piece rates at this point, you merely divide the 100% efficiency production into the basic rate, and thus obtain the piece rate.

The triangular plan is so called because it has three elements to be considered. Under this plan of operation, we have the normal wage, the normal production, and the super-rate. Due to the fact that the average operator would have to expend his utmost effort to reach the 100% efficiency, this plan calls for an establishment of normal at 80% of efficiency. Therefore 80% of the time-study efficiency will give the normal production, and 80% of the basic rate will give the normal wage. The super-rate will be discussed later.

There has been established for every gage, and for every kind of job, a normal wage. This normal wage varies from a 42-gage single operator on plain merchandise to a 45-gage operator on a multiple job in lace. There is a different normal production requirement for each of these jobs as well. If an operator reaches the normal production during a normal week's running, the normal wage is paid. If the operator goes beyond the normal requirement, a bonus is paid through the super-rate. If the operator goes below the

AND BONUS PLAN FOR FULL-FASHIONED WORKERS



OBSERVATION SHEET

Workers Name Doe J Machine No. 31 Gauge 45 Speed High Style 754 Lace Date 1-21-32

Qualification of Worker Good Attitude Cooperative Effort Good

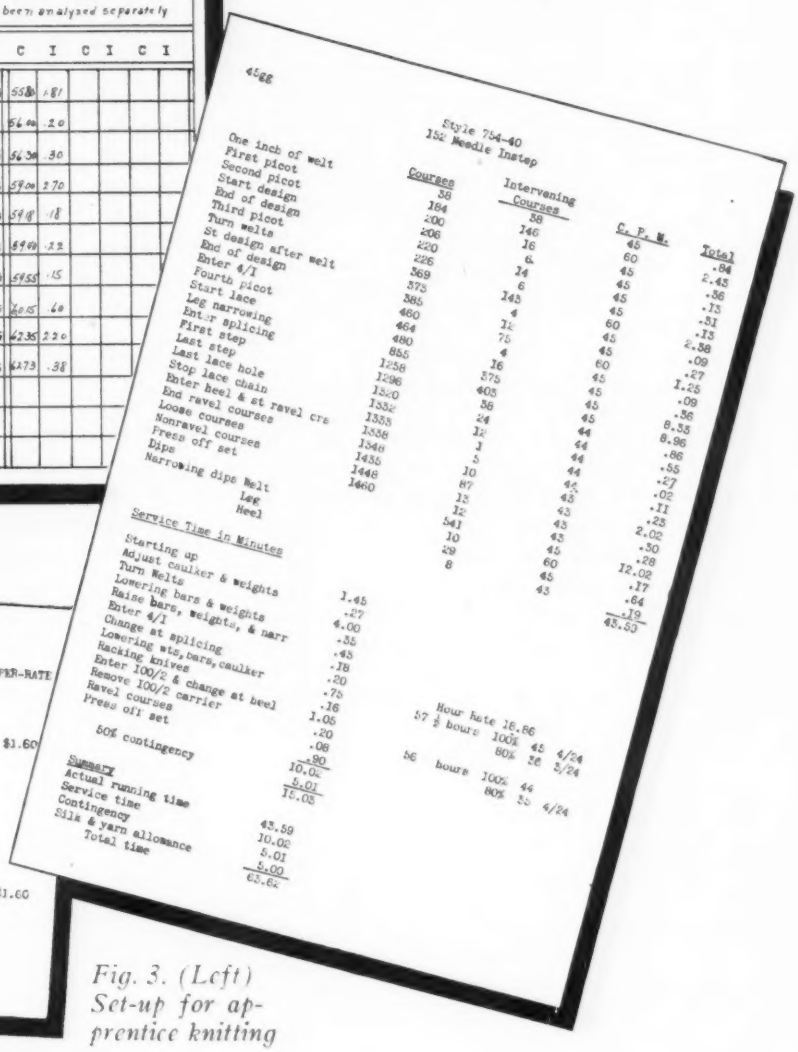
Quality of Work OK Press Offs 1 Courses Per Minute Welt .60, Lace .45, Splicing .44

Remarks: This style has a number of special changes which have been analyzed separately

Detail Operations		C	I	C	I	C	I	Detail Operations		C	I	C	I	C	I
Start Up	Q	2.10	2.10					Enter Heel: 100/2 Rack Knives	Q	55.80	1.81				
	S	7.30	3.40						S	56.40	.20				
Adjust Caulker & Wts	Q	7.57	.27					Remove 100/2 Carrier	Q	56.30	.30				
	S	11.57	3.80						S	58.00	2.70				
Turn Welts		16.88	5.31					Broken Needle	Q	58.18	.18				
Lower Picot Bar	Q	17.23	.35						S	69.00	11.22				
	S	18.00	.77					Ravel Courses	Q	69.55	.15				
Raise Bars & Enter Narrowing		18.43	.43					End Set	S	70.15	.60				
	S	18.92	.34					Press Off Set	Q	72.35	2.20				
Enter 4/1	Q	18.92	.20					Completed	S	76.73	.38				
	S	48.20	28.32												
Change Splicing	Q	49.66	1.46												
	S	53.99	4.33												

Fig. 1. Time-study observation sheet

Fig. 2. (Below) Make-up sheet based on Fig. 1



45gg

Style 754-40
15¢ Needle Instep

	Courses	Intervening Courses	C. P. M.	Total
One inch of welt	38	38	45	.84
First picot	184	146	60	2.43
Second picot	200	16	45	.36
Start design	206	6	45	.13
End of design	220	14	45	.31
Third picot	226	6	60	.13
Turn welts	369	143	45	2.38
St design after welt	373	4	45	.09
End of design	385	12	60	.27
Enter 4/1	460	75	45	1.25
Fourth picot	464	4	45	.09
Start lace	480	16	45	.36
Leg narrowing	855	375	60	8.33
Enter splicing	1258	403	45	8.96
First step	1296	38	45	.86
Last step	1320	24	44	.55
Last lace hole	1333	13	44	.27
Stop lace chain	1338	5	44	.02
Enter heel & st ravel crs	1348	10	44	.11
End ravel courses	1435	87	45	.25
Loose courses	1448	13	45	2.02
Nonravel courses	1460	12	45	.50
Press off set		541	45	.28
Dips		10	60	12.02
Narrowing dips Welt		29	45	.17
Leg		8	45	.64
Heel			45	.19
				43.59

Service Time in Minutes

Starting up	
Adjust caulker & weights	1.45
Turn Welts	.27
Lowering bars & weights	4.00
Raise bars, weights, & narr	.35
Enter 4/1	.45
Change at splicing	.18
Lowering wts,bars,caulker	.20
Hacking knives	.75
Enter 100/2 & change at heel	.16
Remove 100/2 carrier	1.05
Ravel courses	.20
Press off set	.08
	.90
	10.02
50% contingency	5.01
	15.03

Summary

Actual running time	43.59
Service time	10.02
Contingency	5.01
Silk & yarn allowance	5.00
Total time	63.62

Hour Rate 16.86
57 ½ hours 100% 45 4/24
80% 36 3/24

56 hours 100% 44
80% 35 4/24

LAY-OUT FOR 45- GAUGE JOB

STYLE	HOUR RATE	NORMAL WAGE	NORMAL REQUIREMENT	100% TASK	SUPER-RATE
		56 Hours			
754	$0.75	$42.00 full knitter	35 Doz.	44 Doz.	$1.60
		37.80 fourth year			
		31.50 third year			
		25.20 second year			
		57½ Hours			
754	$0.75	$43.13 full knitter	36 Doz.	45 Doz.	$1.60
		38.81 fourth year			
		32.34 third year			
		25.87 second year			

Fig. 3. (Left) Set-up for apprentice knitting

normal production, a penalty is taken off, which is the same amount as the super-rate per dozen.

The normal wage remains the same on similar gages for each style of work; for example, the normal wage on a 45-gage plain number will always be the same, regardless of the construction of the number. The normal production will naturally change, which will establish a new requirement immediately. In this way, one figure remains fixed, and the other two change. The normal wage for a certain job is always this fixed rate, but time study will show whether or not the production requirement is more or less.

Super-Rates

For every dozen above the normal the operator receives a special rate per dozen, called the super-rate, the sum of which is to be added to the normal wage. To obtain this super-rate, the normal requirement is divided into the normal wage, and a bonus of one-third extra added. For every dozen under the normal, the super-rate will be subtracted from the normal wage. This entire plan is based on the theory that the operator is to get 13⅓% more as the efficiency is increased 10%.

To this plan should be added a fourth figure, if necessary, called the task, which is 100% production, established by the time study. Each machine is expected to accomplish this task during one normal working week. The entire efficiency of the plant operation is dependent upon each machine reaching this point. In case some are unable to complete the task in the allotted time, a special task is set up for a probation length of time; and the 100% production is required after that. If the operator does not reach this 100% production after the probation, he receives only 75% of the full rate.

Getting back to the students, their pay is regulated so as to advance from a small weekly sum until they reach a point at about $15 per week. From the beginning of the first week to the end of the twelfth week, the helper shall be known as a "student helper"; and after that, as an "apprentice helper." These student helpers will not receive the full title of helper until they are put on a machine with partial responsibility for its production. The following are the weekly wages: to end of fourth week $5; to end of eighth week, $7.50; to end of twelfth week, $12; thereafter, $12.50.

It is absolutely necessary that the student helper go

through these twelve weeks of training in our school, and out on the floor; and after the twelve weeks of training have been completed, the student will receive $10 in gold.

An apprentice helper's time, however, is regulated by his ability. Before becoming a full-fledged helper, the time might be six months, or it might be nine months—ability is what determines this period. After the apprentice helper has reached a certain stage in his education, he is then ready to be placed on a machine with a certain amount of responsibility. This placement, of course, depends upon positions being open. The operator might become a helper on either a double or a multiple job; and of course each one carries a different normal wage, as well as production. Due to the fact that advancement might not be so rapid as the management would like, we have placed into effect a credit system, which will affect the wages of the helper as time goes on.

From helping, the operator can be advanced to apprentice knitting, and here is where the credit system begins to function. From the first to the 52nd week, the operator receives 52 credits; from the 53rd to the 104th week, another 52 credits; and so on. For each week one credit is issued. It requires four years before 208 credits are reached. At the 208th credit, the operator becomes a full-fledged knitter.

During the time that the credits range from 157 to 208, the operator receives only 90% of the knitter's wages, even though he has assumed all the duties of a full-fledged knitter. During the time that the credits run from 104 to 156, the operator receives only 75% of the knitter's wages; and from the time that they run from 52 to 103, only 60%. Of course, during the first year we expect the operator to be on helping. Through this method it takes four years before the operator is working on the full rate. During that time, if the work has not been satisfactory, we can penalize by the deduction of credits; or we can, in worthy cases, give bonuses by allowing extra credits.

The normal production requirement is the same for every operator on a particular job and style, but the wage will vary according to the operator's service and efficiency.

Under this plan the operator is permitted to make the same normal wage on any gage or any type of job, regardless of the style. This normal wage set-up does not change; the only thing that alters is the normal production. The final results are that the pay envelope will remain stationary.

Other Departments

The same general plan is carried through each department, but it is subjected to a slight variation in other divisions of the plant. We do not follow the apprentice plan throughout, as outlined in the knitting section, which includes legging and footing. However, the general idea of apprentice help prevails. In the auxiliary operations we establish a normal wage, a normal production, and the usual super-rate. In our looping and seaming and our finishing departments, we have changed the ratio from 13⅓% for every 10% increase in efficiency to 15% increase in remuneration for 10% increase in efficiency. This is because the wages are very much less in these auxiliary departments, and we can afford to step up a little more for production.

Fig. 3 shows a set-up for a 45-gage net style, giving the various classifications, including apprentice knitting, as well as the three requirements—the normal wage, normal production, and super-rate.

In case the operator has worked less than 40 hours, due to insufficient work coming through the department, there is a special rate made on wages. Ten per cent will be added to the total wages for these operators. In case of time lost through holidays, or plant shut-down, there will be no special consideration. However we have not had a plant shut-down since the very start of our factory here in Phoenixville. Naturally there are times when one department catches up with another; but at these times we send the operators home. This happens only occasionally. For unavoidable delays we also make a special consideration in that we quite often reduce the operator's normal production requirements; and in cases where the operator is working during one of these unavoidable delays, we also pay the normal wage.

One of the difficulties confronting a plan of this kind is that an accurate record of the operator's hours must be maintained, or else the pay department will not be able to establish the proper payment, due to the fact that the normal changes as the hours are changed. Our time studies are based on a certain number of hours each week, called the standard hours; and in case, through unavoidable delay, the operator is not permitted to work this number of hours, the normal requirement changes. To determine the new normal wage, we divide the standard normal wage by the standard hours, and multiply the result by the number of hours worked.

The fact that the super-rate does not change, regardless of the number of hours worked, can be readily understood when the principle underlying the establishment of the rate is understood—a division of the production into the amount of money, multiplied by one-third more to give the super-rate. Therefore the number of hours worked and the production requirement have a direct bearing, and the ratio will not change as a result of the division and multiplication.

Changing rates is a very simple problem. It is merely necessary to adjust the hour rate, and this in turn will adjust normal wages and affect the production rate.

Conclusion

This plan seems contrary to those advocated by most industrial engineers throughout the country, in that it has an upward curve of payment, rather than a downward one. It has been the theory for some time that a downward curve for unit labor costs is necessary due to the fact that the cost per unit should decline as the production advances in order to expand the market.

In the first place, a downward curve would be rather difficult to plot in an organization that has been accustomed to straight piece-work rates. Another thing is that the production requirements have to be maintained in our plant, or else we operate at a loss. Production is such a prime factor behind our general operation that we feel we should place a big premium in order to obtain the desired results. We are, however, making quite a saving in the amount of overhead expense as the production increases. This saving we are liberally sharing with our employees. We have found that an operator expends every effort possible to make production, even going so far as to desire over-time work, in order to get the advantage of the super-rate per dozen, which is reached beyond the normal requirement. Chart I shows a graphic representation of the cost per unit for the style shown on Fig. 3.

Transparent Velvets...

CHANGES IN CONSTRUCTION

By Maurice N. Roux

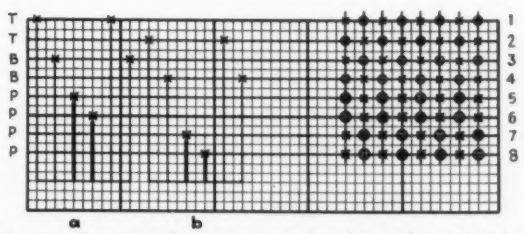


Fig. 1. Draft and cam set-up for four-pick pile bind

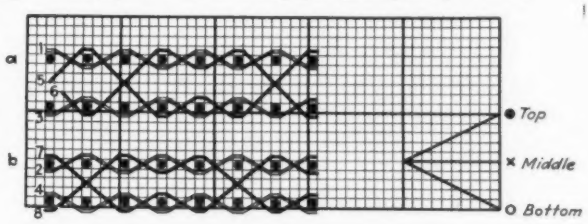


Fig. 2. Cross-section of four-pick pile bind

Fig. 3. Showing position of threads

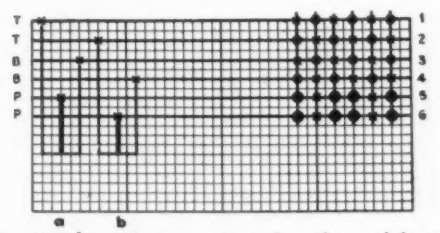


Fig. 4. Draft and cam set-up for three-pick weave

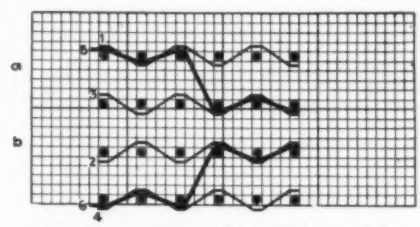


Fig. 5. Cross-section of three-pick weave

FOR a number of years various types of transparent velvets have enjoyed great popularity. Nor is this fact to be wondered at, for until the present time no pile fabric has been developed which approaches it in sheer beauty; its luster is enhanced when the pile is laid flat—either in the direction of the warp or at an angle of about 45 deg. to the filling.

One of the first types of transparent velvet to appear on the market was made with the so-called "four-pick pile bind"; that is, the repeat of the pile tuft was four picks, whereas the repeat of the weave was actually eight picks. The pile material was almost exclusively 100-denier rayon, 40 or 60 filaments, sized before weaving either in the skein or warp form. The ground-warp material was usually two-thread 13/15 Japan with a varying number of turns to the inch, usually 35 to 40. The filling was more often of the same material as the warp. This fabric was lustrous and had a heavy hand, but was soft, draped well, and did not crush easily.

The draft, weave, and cross-section are shown in Figs. 1, 2, and 3. Fig. 1 represents the draft and the cam set-up. Beginning at the right and reading to the left, it will be seen that the ground warp weaves in a plain-weave fashion. A solid dot indicates that the top warp is raised for one pick; "X" indicates that the top is lowered for one pick or that the bottom warp is raised for one pick; and "O" indicates that the bottom warp is lowered for one pick. As it is possible for the pile warp to occupy successively these three positions, the same signs apply. Fig. 3 shows the thread positions.

Fig. 2 shows the cross-sections of two consecutive dents in the reed, the small dots representing the picks. The first pick in "a" (reading from the left) is the same pick as the first pick in "b."

Construction: ground warp, 7800 ends of two-thread 13/15 Japan, 40 turns right; pile warp, 3900 ends of 100-denier rayon, 40 or 60 filaments; picks, 150 per inch, two-thread 13/15 Japan, 40 turns right; reed, 48.5, 6 ends per dent; finished width, 39 in.

Variations of this fabric were made by the use of right and left twist in the ground warp and either right or left twist in the filling. This served to give a pebbly effect to the back of the fabric. Later a demand came for a lower-priced fabric, and resort was made to the finer numbers of spun silk and schappe in both warp and filling. This did not prove very satisfactory, and another type of fabric was developed to meet the demand.

This later type of transparent velvet was made with the so-called "three-pick weave." The repeat of the pile tuft required three picks, but a full repeat of the weave required six picks. This type of construction tended toward a more open and loftier fabric, but it was more susceptible to crushing than earlier types, since pile was not so firmly held and construction was lighter.

The draft and weave are shown in Figs. 4 and 5. The construction is as follows: ground warp, 6400 ends of two-thread 13/15 Japan grenadine; pile warp, 3200 ends of 100-denier rayon, 40 or 60 filaments; picks, 106 per inch of two-thread 13/15 Japan grenadine; reed, 78, 3 ends per dent; finished width, 39 in.

Various twists other than grenadine were used in attempts to improve and to change the appearance.

A glance at the two accompanying drafts will show the difference in construction of the two fabrics. It will be noticed that in Fig. 1 there is one ground end on each side of every two pile ends, whereas in Fig. 4 there is one ground end on each side of every pile end. The ground weave in Fig. 4 is a taffeta; that in Fig. 1 is not.

Warping at 900 Yards

AUTOMATIC SPOOLING AND "SUPER-SPEED" WARPING AT LANCASTER

THE introduction of Barber-Colman's new "Super-Speed" warper, making possible over-end warping at a speed of 900 yd. per minute, represents another forward step in cotton-manufacturing practice. The redesign of the automatic spooler makes it possible for the tying mechanism to be operated at a speed sufficient to tie up the bobbins that three operatives can put in place; whereas formerly its speed was sufficient only to tie up the bobbins which two operatives could put in place. Consequently, fewer machines of the new type are necessary in the spooling and warping department, as compared with the former types of Barber-Colman equipment.

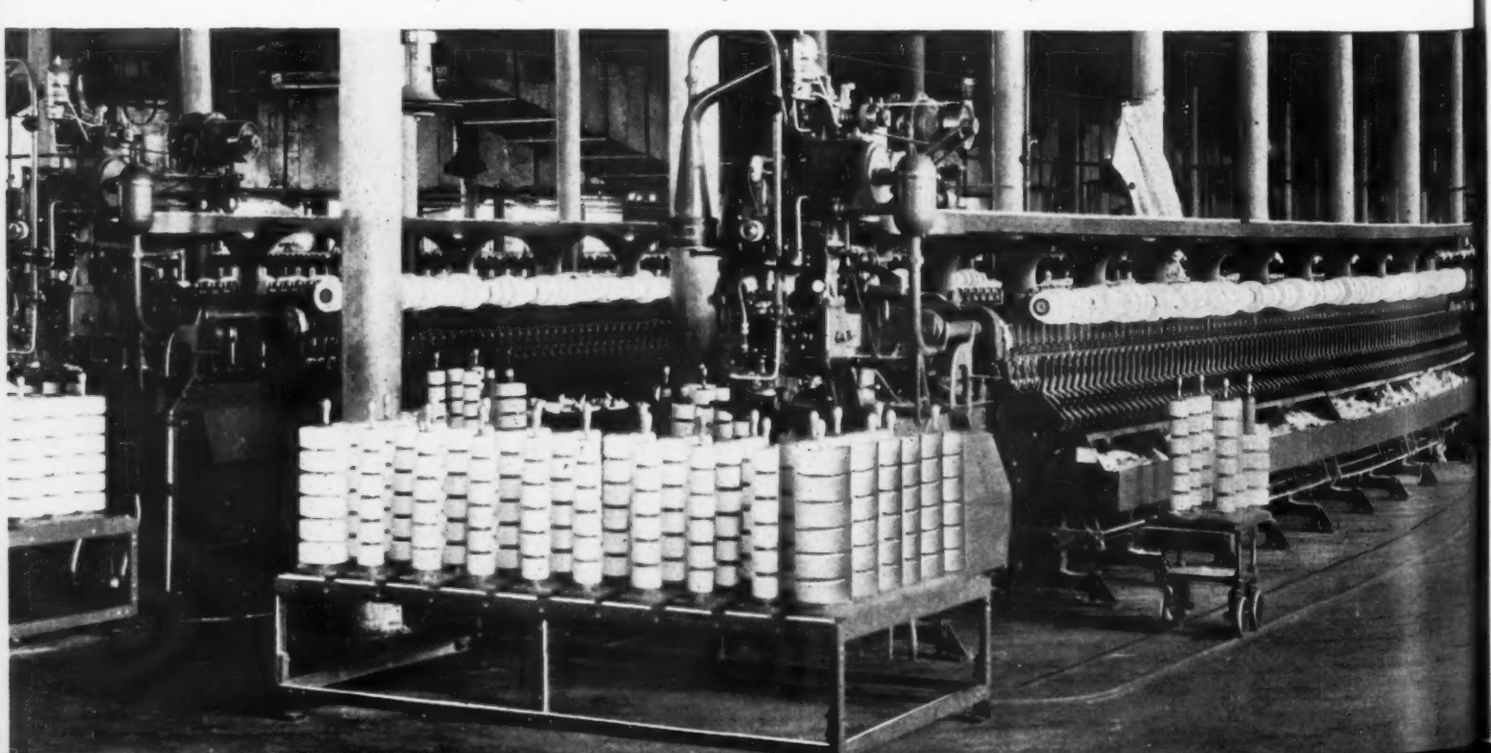
At the Lancaster (S. C.) Cotton Mills, where an installation of this new equipment is already in operation, six spoolers of 180 spindles each and four "Super-Speed" warpers, running on 28s and 30s, are handling the warp yarn production of 64,176 spindles. The old-style slow-speed machines formerly operated in the spooling and warping department consisted of the following: 32 spoolers of 120 spindles each and 42 warpers. The number of spooler hands was reduced from 64 to 18, warper tenders from 5 to 2, and creel hands from 8 or 10 to only 4. Lancaster Cotton Mills are employing male labor exclusively on the night shift. The automatic tie-up of the spooler makes it easy for male workers to become efficient spooler operatives, which is almost an impossibility where hand-tying is employed.

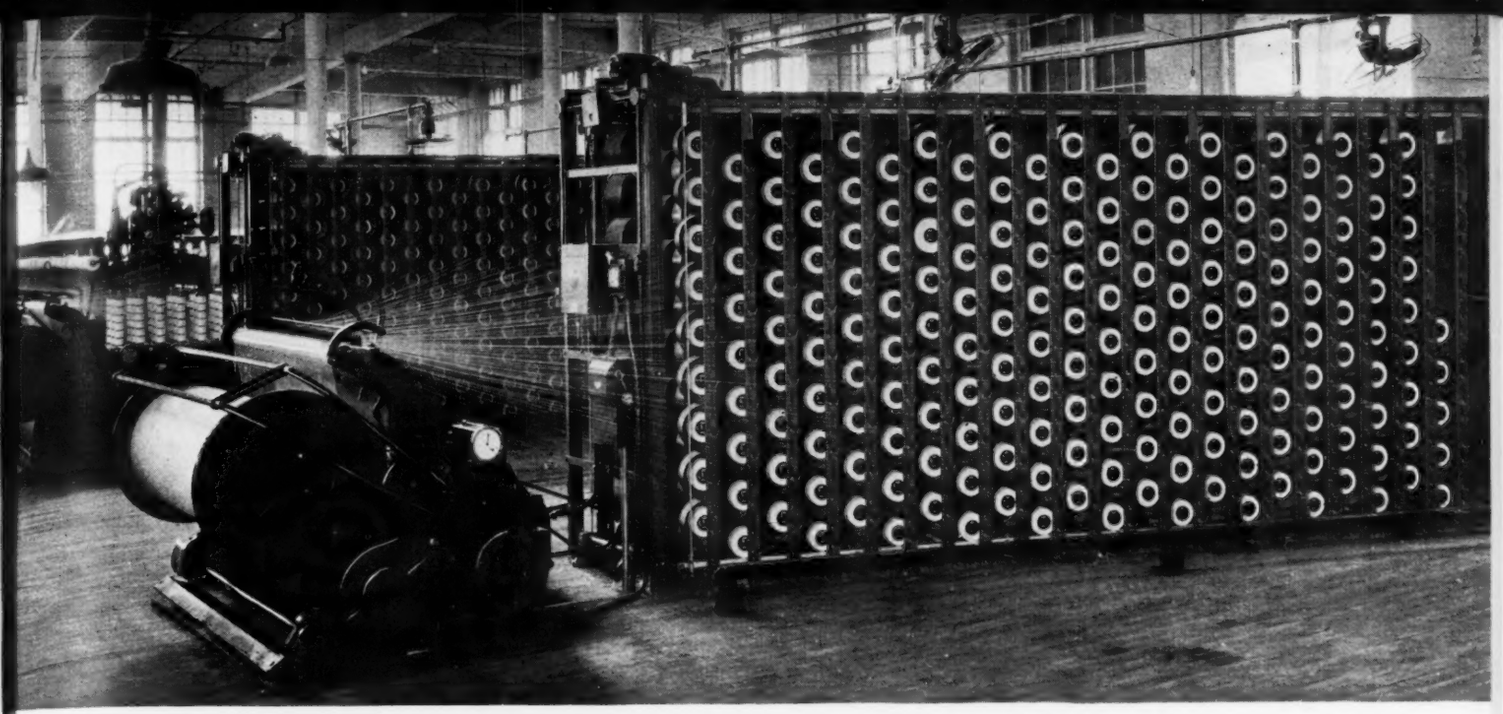
It is obvious from the foregoing figures on the number of operatives that were eliminated by the installation of Barber-Colman equipment that the savings in labor costs have been very considerable. Aside from economies actually resulting in the spooling and warping processes, according to F. Gordon Cobb, general manager of the mills, the installation of Barber-Colman units has made possible the allocation of an average of 30% more looms to each weaver. This improvement in running of the looms is attributed chiefly to the elimination of bad knots, kinks, and gouts. This tends to substantiate the results of long tests which indicate that 80 to 90% of the improvement in weaving is made possible by the automatic spooler, whereas only 10 to 20% is due to the high-speed warper. Furthermore, in the floor space released by the replacement of old-style slow-speed spoolers and warpers, it has been possible to install about 225 additional looms.

The new "Super-Speed" warper, which operates at the rate of 900 yd. per minute, embraces several features radically different from anything included in previous types of Barber-Colman warping equipment. The former method of warping from revolving yarn packages has been replaced by an over-end system of warping from stationary packages which are wound on a Bakelite sleeve. Formerly the yarn was transferred from spooler to warper on cheese cores, each of which contained two ball-bearings; but now these bearings remain on the spindle arm of the spooler.

The warper runs with practically no tension on the

Installation of 180-spindle automatic spoolers at Lancaster (S.C.) Cotton Mills



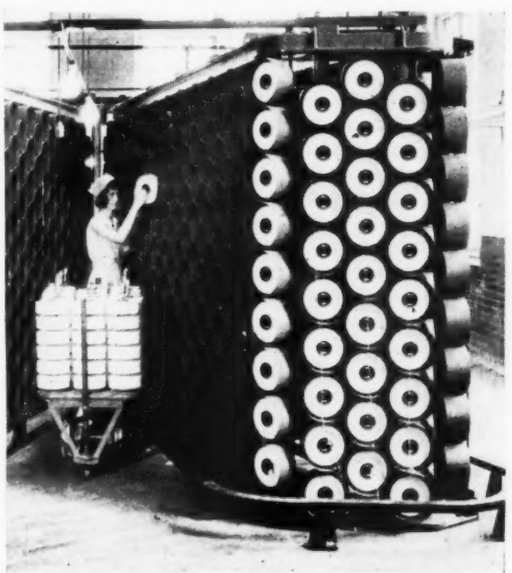


Lancaster's installation of "Super-Speed" warpers, which run at 900 yd. per minute

yarn. Under normal operating conditions, as shown by tensometer readings in the Lancaster Cotton Mills, tension on the yarn between the creel and the warper beam is only $\frac{2}{10}$ to $\frac{3}{10}$ oz. In order to prevent kinking of the yarn when the warper is stopped to piece up ends, the creel is provided with a mechanical arrangement that applies tension by action of the drop wires. During the interval in which tension is automatically applied to the yarn, each drop wire acts as a tension device, but is released when a certain speed is reached in starting up the warper.

Another major improvement in the new warper which makes possible greater economy in operation is the system of creeling while the machine is running. The creel is of entirely different design from previous types. Package containers are mounted on vertical bars that are driven by roller chains in such a way that when the containers are empty they can be transferred to the inside of the creel, while containers with full yarn packages take their place in position for warping. An average of only 15 minutes is required for taking off the full warp, reversing the package containers, and starting up the machine. The chain and sprocket mechanism used in changing the position of the package containers is driven by a $\frac{1}{4}$-hp. motor. Two electric fans are mounted on each side of the creel to prevent lint accumulation.

The "Super-Speed" warper has a new feature that simplifies the problem of locating broken ends in the creel. This is a system of duplicate numbers on the creel and on the comb. The creel is built in vertical rows of nine packages and the comb is divided into sections containing nine dents each. The sections of the comb are numbered from 1 to 24 each way, to the right and left, corresponding to the vertical rows of nine packages in the creel. Thus, an operative can determine the exact location of the broken end by checking the empty dent.



Lancaster operative inserting yarn packages in containers on inside of creel while warper runs.

The warper is provided with a safety guard on the beam for the protection of the warper tender. This device makes it difficult for an operative to reach the comb while the warper is running.

85 Knots per Minute

The traveling mechanism which carries and operates the knotter on the spooler runs at a greater speed than was possible on previous types. A simplified cam mechanism enables the machine to tie approximately 85 knots per minute, as compared with 72 knots per minute on the older machines, while the knotter now ties a weaver's knot with much shorter "tails" than formerly.

The drive on the new spooler is quite different from that employed on older types. Two 3-hp. motors, one at each end of the machine, with V-belt drives are now used. Each motor is used to drive one side of the spooler. This type of drive replaces the one $7\frac{1}{2}$-hp. motor and belt drives used on the 120-spindle and 140-spindle spoolers. Unit parts on the new spoolers are heavier, affording 50 to 75% more wearing surface, with prospects of a correspondingly longer life.

Approximately 50% more production than was hitherto possible can be run through a set of the new automatic spoolers and warpers, resulting in a saving in the number of machines required which is equivalent to approximately a 25% reduction in the cost of this machinery.

Cotton Drafts and Twists

THEIR EFFECT ON PRODUCTION

By Albert D. Barnard

◆ *Mr. Barnard is a practical cotton spinner, and readers will be interested to compare their methods of calculating machinery organizations with his. Many spinners welcome an opportunity such as is offered by this article to brush up on their mill mathematics.*

THE proper regulation of drafts in a spinning plant, assuming that the machines have been arranged to permit the most convenient and efficient operation, should be given first consideration by the mill management. The only factor which ranks ahead of machine layout and the regulation of drafts is the selection of cotton, as this factor governs the quality of the product and also the possible output of the machinery. There are many old mills now being operated either at a loss or with no profit which could be placed in a favorable competitive position with only a small capital outlay by changing their machinery organizations and making the necessary adjustments in their equipment. Guesswork should not be depended upon in figuring the production of any machine; but actual check on time lost due to stoppage for doffing and other reasons, or on the amount of contraction, is essential if the machinery is to be operated at the greatest efficiency.

Several practical production formulas, such as those given below, will be helpful in the preparation of an organization sheet for any weight or kind of goods. For drawing frames or other machines with which cans are used, the following formulas are applicable:

$$\left(\frac{\text{Lb. per can} \times 7{,}000}{\text{Grains per yard}}\right) \div \left(\frac{\text{Circ. del. roll}}{36} \times \text{R.p.m.}\right) = \text{Minutes to fill can}$$

To this figure should be added the time necessary to change the cans and to complete the required amount of cleaning.

$$\frac{\text{Min. per day}}{\text{Min. per doff}} \times \text{Lb. per can} \times \text{No. of del.} = \text{Total lb. production}$$

A certain amount of time is required each week around the drawing frames to keep them in running order; and, as this usually involves stopping the machines some of the time, an accurate check of this stoppage should be made and taken into consideration in determining the efficiency of the operation.

To figure the production of a roving frame or a spinning frame, the following formula may be used:

$$\frac{\text{In. per hank} \times \text{Hanks per lb.} \times \frac{\text{Twist}}{\text{per inch}} \times \text{Lb. per bobbin}}{\text{R.p.m. of spindles}} = \text{Minutes required to run a doff}$$

To this figure should be added the time necessary for changing bobbins, cleaning the frame while stopped, and starting up the machine.

$$\frac{\text{Min. per day}}{\text{Min. per doff}} \times \text{Lb. per bobbin} = \text{Lb. production per spindle}$$

The usual allowance for doffing roving machinery, including piecing up, is 15 min. per set, which will amply take care of the stoppage with satisfactorily running work. The allowance for spinning frames having an average number of spindles is three to five minutes.

Long drafts are advantageous from the standpoint of economy, because less roving machinery is required to produce the same number of pounds, and the savings in power, floor space, and interest on investment made possible by the elimination of roving frames needs little comment here. Short drafts, while producing good work with respect to evenness, strength, and running qualities, require finer roving and are costlier to operate.

The range of drafts common to the majority of mills, found in practice for a good many years, is as follows: slubbers, 3.75 to 4.25; intermediates, 4.75 to 5.25; fine frames, 5.50 to 6.00; jack frames, 6.00 to 6.50; spinning, 6.50 to 8.00 on single roving and 10.00 to 13.50 on double roving. (We shall not consider extra-long drafting in this article.) To demonstrate how the selection of the cotton, the draft of the machines, and the twist per inch are reflected in the operating costs and the quality of the roving and yarns, we shall select as an example a particular construction of cloth. It will be necessary to ascertain the warp and filling numbers, the machinery required to produce the yarns (based upon the production of the looms), weight of the goods, drafts, twist per inch, and efficiency of the management.

We know that any fabric consists of warp, filling, and sizing materials. Within reasonable limits, either of these component parts can be varied in percentage of weight to meet any special requirements, and still comply with a constant specified weight per yard. Thus, a piece of goods may contain 50% warp, 5% starch or size mixture, and 45% filling; or it may have 55% warp, 7% starch or size mixture, and 38% filling. Taking for example a well-known print-cloth weave which has 64 warp threads per inch and 60 filling threads per inch, is $38\frac{1}{2}$ in. wide, and weighs 5.35 yd. per lb., if it is desired to construct the fabric with 55% warp, 5% starch and sizing materials, and 40% filling, the following computations would be made:

$$\text{One yard will weigh } \frac{7{,}000}{5.35} = 1{,}308 \text{ grains}$$

Amount of warp	$1{,}308 \times .55 =$	720 grains
Amount of size	$1{,}308 \times .05 =$	65 grains
Amount of filling	$1{,}308 \times .40 =$	523 grains
		1,308 grains

Allowing 8% for contraction in weaving, which is considered about right, the warp yarn number required would be determined by the following formula:

$$\frac{64 \times 38\frac{1}{2} \times 1.08 \times 8\frac{1}{3}}{720} = 30.79s$$

Making an allowance of 9% for shrinkage in width,

the yarn number for filling would be as follows:

$$\frac{60 \times 38\frac{1}{2} \times 1.09 \times 8\frac{1}{3}}{523} = 40.10s$$

The next step would be to figure how many warp and filling spindles are needed to supply the weave room with yarn. To figure the loom production, taking the usual loom speed of 164 picks per minute on this width of goods, and with a basis of 95% efficiency, we should proceed as follows:

$$\frac{164 \times 600}{36 \times 60} = 45.5 \times .95 = 43.22 \text{ yd. per loom per 10 hr.;}$$

$$\text{or } \frac{1{,}308 \times 43.22}{7{,}000} = 8.07 \text{ lb. per loom per 10 hr.}$$

Allowing a margin of 5% for waste in the weave room, the amount of thread required per loom will be 8.50 lb. per 10 hr. With this figure as a basis, it is a simple process to compute the weight of warp yarn, filling yarn, and size materials, as follows:

Warp yarns	$8.50 \times .55 =$	4.675 lb.
Filling yarns	$8.50 \times .40 =$	3.400
Size materials	$8.50 \times .05 =$	.425
Total		8.500 lb.

Therefore, to supply a weave room of 1,000 looms on this particular construction of goods, 4,675 lb. of warp and 3,400 lb. of filling are required per 10-hr. day.

The possible output of 31s warp yarn, operating with standard spindle speed and putting in standard twist per inch is .227 lb. per spindle per 10 hr. Likewise, the possible production of 40s filling yarn operating under the same conditions is .171 lb. per spindle per 10 hr. The number of spindles required per loom, therefore, would be determined as follows:

$$\frac{4.67500}{.228} = 20.53 \text{ warp spindles}$$

$$\frac{3.40000}{.171} = 19.88 \text{ filling spindles}$$

Taking the total number of warp spindles (20,530) required for 1,000 looms, and dividing by 224 (average number of spindles per frame), it will be seen that 92 warp spinning frames would be necessary. Similarly, by dividing the number of filling spindles (19,880) by 240 (average number of filling spindles per frame), we find that 83 spinning frames would be required for filling.

Obviously, before the amount of roving machinery required can be determined, the operating drafts of the spinning frames and other machinery must be decided upon. This is referred to as the organization. Showing the effect of different drafts upon the machinery, floor space, and operating costs, two organization sheets are offered covering spinning and roving with what are considered long and short drafts.

Organization for 31s Warp with Long Draft

	Slubber	Intermediates	Fine Roving	Spinning
Hank or number	.56	1.39	4.60	31.00
Doublings	1	2	2	2
Draft of machine	3.50	5.25	6.50	12.50
Spindles required	212	602	2,448	20,530
Floor space in sq.ft.	318	660	1,587	7,637

Organization for 31s Warp with Short Draft

	Slubber	Intermediates	Fine Roving	Spinning
Hank or number	.92	2.24	5.74	31.00
Doublings	1	2	2	2
Draft of machine	3.00	4.50	5.00	10.00
Spindles required	405	1,116	3,406	20,530
Floor space in sq.ft.	580	1,230	2,217	7,637

Production not only is affected by decreasing the weight of the stock when changing from long to short draft, but also is influenced by the greater amount of twist necessary and the reduction in speed of the delivery rolls. It will be noted that the difference in total spindles required at the roving frames is 1,665, or an increase of 51% in the case of short-draft spinning, with a corresponding increase in floor space.

In an up-to-date mill with which the writer is acquainted the following organization is being used:

	Slubber	Intermediates	Fine Roving	Spinning
Hank or number	.74	1.83	5.49	30.00
Doublings	1	2	2	2
Drafts of machines	4.00	5.00	6.00	11.31
Spindles required	316	830	3,120	21,056
Floor space in sq.ft.	464	1,012	2,028	7,802

Weight lap, 12 oz.; card draft, 100; weight card sliver, 50 grains.

Additional twist must be resorted to in changing from $1\frac{1}{16}$ in. cotton to $\frac{15}{16}$ in. cotton if the desired breaking strength of the yarn is to be obtained. How such a change is reflected in lower production and increased cost per pound is shown by the following example. In the case of 30s warp yarn, spun from $1\frac{1}{16}$-in. staple, with standard twist, which is 26 turns per inch for that number, the number of turns per average length of staple would be $\frac{26.00}{16} \times 17 = 27.62$. In order to obtain the same number of turns twist per average length of staple in the change to $\frac{15}{16}$-in. cotton, we find $\frac{27.62 \times 16}{15} = 29.46$ turns per inch. Making a comparison of production in pounds per spindle operating with both twists per inch, we obtain the following results:

$$\text{Standard twist: } (600 \times .14) \div \frac{30{,}240 \times 30 \times 26 \times .14}{9{,}500} = .2400 \text{ lb. per spindle}$$

$$\text{Excess twist: } (600 \times .14) \div \frac{30{,}240 \times 30 \times 29.46 \times .14}{9{,}500} = .2132 \text{ lb. per spindle}$$

The importance of operating as close to standard twist as possible can readily be seen.

Shipping and Driving

SILK AND RAYON LOOMS

By H. E. Wenrich

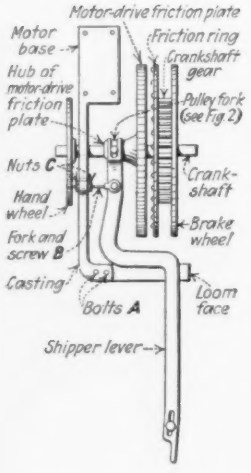


Fig. 1. Plan view of driving unit

ONE reason for a loom banging off can be traced to worn keys or keyways in either the friction plate or the brake wheel. The effect of wearing at these points is to cause backlash; and as the wear increases, the backlash becomes more pronounced, resulting not only in poor picking, but also in damaging the crankshaft to a considerable extent. This defect is easily detected by placing the hand on the brake wheel and turning the lay back and forth slightly. When backlash is detected, a larger key may be inserted and forced lightly into position with a small hammer.

A plan view of the driving unit as seen from the front of the loom is sketched in Fig. 1. The friction ring and the brake wheel with the crankshaft gear are keyed to the crankshaft. The motor base is shown with the casting running to the face of the loom and fastened by two bolts at *A*. These two bolts may also be used as a friction adjustment by moving the casting toward the loom side, as the casting holds the fork and screw *B* and adjusting nuts *C*. The pulley fork should be kept packed with grease at all times. When, however, the fork becomes worn on one side, it may be turned around so that the other side will receive the most wear.

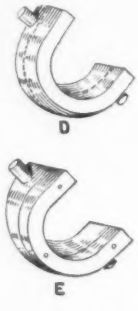


Fig. 2. Cutting one fork to build up another

When the pulley fork and hub are dry and worn, the hub will wear into the drive gear or pulley (the pulley is used in place of the gear for belt drive). At times, a new pulley or gear may not be available; and a temporary repair, which will often last for years, may be made, providing the fixer keeps the mend well greased in the future. This fix is shown on the side of the pulley fork at Fig. 2. A worn-out pulley fork is utilized by cutting off a piece, as shown by the dotted line at *D*. This piece should be of the thickness required to fit into the worn-out hub when placed alongside of the pulley fork in use. The cut piece is riveted on to the fork which has caused the wear, as shown at *E*.

Fig. 3 shows how the lower end of the shipper handle is connected to the shipper lever. When the shipper handle slides off, knocking off the power without any apparent reason, it indicates that the slot in the bottom of the handle is not deep enough at the point *F* and that it needs filing.

Another type of mechanism for the same work is shown at Fig. 4. The outstanding difference is that the friction lever operates at the back of the driving part instead of at the front. At the extreme left is the handwheel, and next comes a friction-adjusting bracket, which may be moved in or out by loosening bolts *G*. The pulley fork faces in the opposite direction to that described previously. The hub must be well greased.

There is a further adjustment on this type of friction which takes the form of the rod having on its end the nuts *H*. Screwing the nuts toward the friction decreases it; screwing them away increases it. The rod attached to the end of the friction-adjusting bracket may also be used to increase or decrease the friction by altering the position of the nuts *I* and *J*. The nuts *J* are bolted to the loom frame. The friction may be still further varied by moving the stud holding the shipper handle to the side of the loom (not shown).

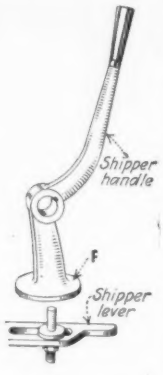


Fig. 3. Relation of shipper handle to lever

There are several important adjustments to keep in mind on any type of friction loom drive. If when the loom stops the center stop-motion fork jumps up and cuts the cloth, the friction is too tight. The adjustment on the shipper handle will generally overcome this defect. If the shuttle stops in the center or any other place in the shed, there is usually something wrong with the friction adjustment. The handle should go off smoothly; but, at the same time, it should not fly off of its own accord. If the loom starts up slowly and at times bangs off with the shuttle not quite in the box, the friction is not tight enough and is adjusted at fork and screw. Grease will cause the friction to slip, and a small amount of lime worked down between the driving gear and lever friction ring will cut out the grease and remedy the trouble. The friction should grip tightly when the shipper handle is pulled back within one inch of the complete back stop. If the friction slides at this point, tighten it up at the point of contact on the hub.

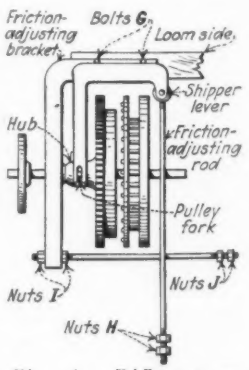


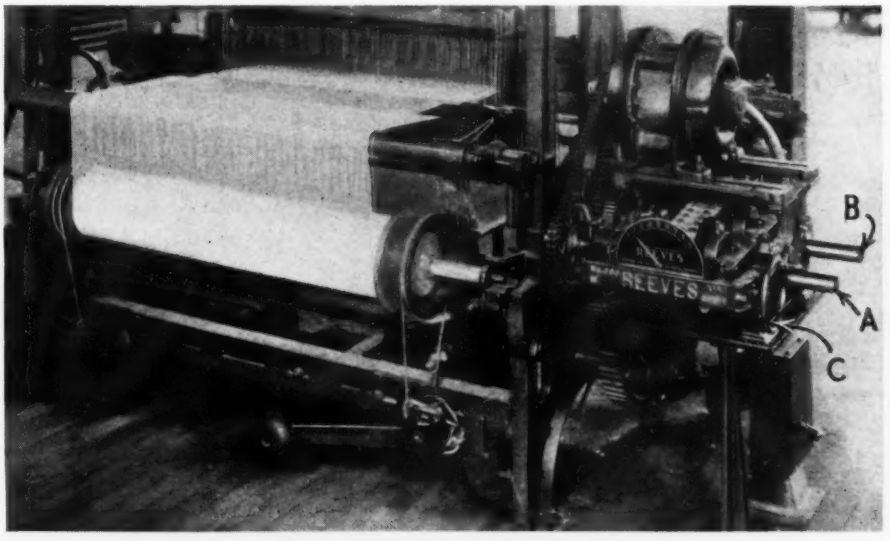
Fig. 4. Different arrangement of drive

Variable-Speed Drive

PROVES ADVANTAGEOUS FOR DOBBY LOOMS

By T. R. Hart

Associate Professor, N. C. State College



Variable-speed transmission applied to dobby loom.

THE recent application of a variable-speed drive to a Draper dobby loom in the Textile School of North Carolina State College has attracted considerable attention from visiting mill men. It is the first variable-speed transmission to be applied to a loom by the Reeves Pulley Co., Columbus, Ind.

Some features of this installation are as follows: The transmission of power is positive at all speeds. A wide ratio of speed variation is possible. When set, the speed remains constant at the rate desired and does not vary with fluctuating loads. It is possible to change the speeds while the loom is in operation, thus eliminating the necessity of stopping production to effect speed regulation.

At the present time this drive, which has proved very satisfactory on spinning frames, is still in the experimental stage so far as looms are concerned, but it is interesting to contemplate some of its possibilities. It is doubtful if variable-speed transmission will ever become standard equipment on plain looms which are intended to weave sheetings, print cloths, etc.; for such looms are usually speeded as high as is consistent with satisfactorily running work and then kept at that speed.

However, on fancy goods it may be a different question, as mills frequently have to change the speed when changing from one type of goods to another. In such cases it would be much easier to obtain the correct speed by simply turning a handwheel instead of changing gears on the motor or friction disk.

Other cases where variable-speed transmission might prove valuable on dobby looms can be mentioned. Suppose a dobby is to be changed from, say, a 24-harness pattern to a 12-harness pattern. It is reasonable to assume that under such conditions the loom might be speeded up a few picks without affecting the running of the work. Occasionally work runs bad, especially on Monday mornings. Then it might pay to slow the looms down for a few hours and speed up later in the day.

The accompanying photograph offers an excellent view of the new drive applied to the Draper loom in our weave room. The motor, through a sprocket chain, transmits power at a constant speed to shaft *A*, on which a pair of cone-faced disks are double-key mounted. A similar pair of cone-faced disks are double-key mounted on the parallel shaft *B*. On the end of the shaft *B* is a gear which meshes into and transmits power to the friction disk on the loom.

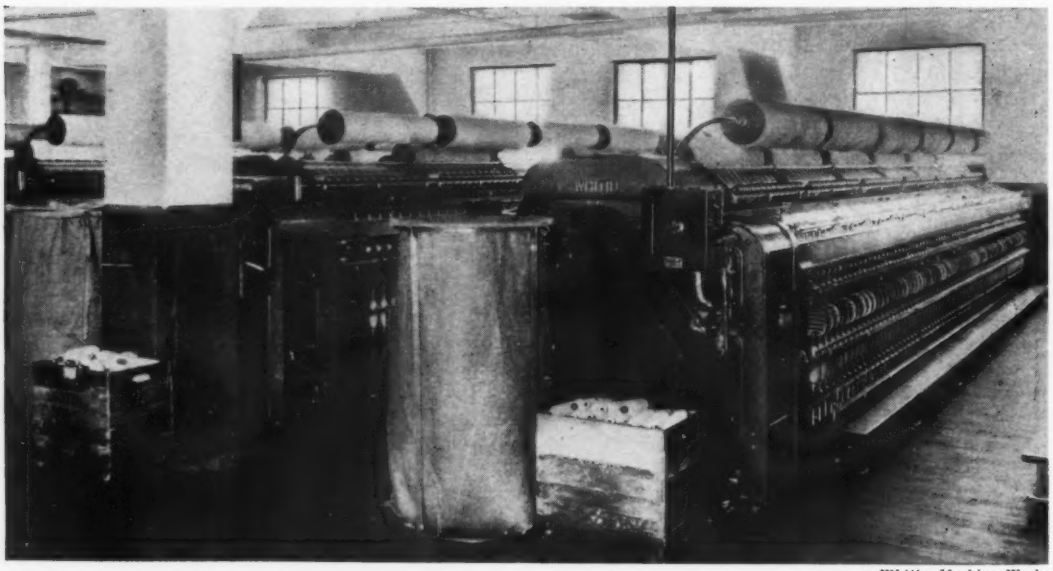
The cone-faced disks are adjustable laterally to any position desired by means of shifting levers actuated by a speed-changing screw, which is operated by means of the handwheel *C*. The movement of this screw separates the shifting levers at one end of the transmission to widen the V-shaped throat or groove formed by the disks and simultaneously brings together the levers at the opposite end to close the throat formed by the other set of disks. A special V-shaped belt fits into the throat formed by each pair of disks, connecting the two pairs and transmitting power from the driving to the driven.

While shaft *A* is run at a constant speed, the speed of shaft *B* increases or decreases as the V-belt changes its position to run over different driving diameters formed by the disks. Every change in speed of the variable-speed shaft is effected by a change in the speed-changing screw, which in turn changes the position of the shifting levers, thus effecting an immediate change in the relative driving diameters formed by the two pairs of disks.

Woolen Ring Spinning...

A MILL'S EXPERIENCES

By Howard Price Galloway



Whitin Machine Works

Fig. 1. Installation of woolen ring spinning frames

◆ *Woolen ring spinning, as conducted today, is so recent a development that comparatively little has been written about it from the viewpoint of the practical spinner. Hence this paper, which was presented at the 31st Annual Meeting of the Alumni Association of the Philadelphia Textile School this month, is of particular importance. Mr. Galloway relates some of the difficulties which were encountered by the mill with which he is connected when it first adopted the frame method and tells how they were overcome. He also describes the spinning operation itself and lists the advantages which the mill has realized.*

WE ARE producing today on our woolen ring spinning frames smooth, strong, even yarns, which are at least equal in quality to our mule-spun yarns. And we are doing it economically. Our frame spinners, all girls, are being paid approximately one-half the mule piece rates. The machines are running day and night on eight-hour shifts. Our experience with these machines has been that day and night operation is merely taking advantage of all possible benefits obtainable through their use.

On both the spinning frames manufactured in this country the cycle of operations is practically identical. A general idea of their appearance can be gained from Fig. 1. It must be borne in mind that frame-spinning is a continuous operation, with no time lost by any reversing operations. The ends of roving are delivered by drums to the steel back rolls—one fluted, the other smooth. Contact between these rolls is frictional. The roving next passes over the deflector rods, through the twister heads, and between the front rolls. One of these front rolls is made of fluted steel, the other of a suitable substance which will be discussed later. From these the material passes through eyelets in the thread board, down to the travelers, and hence to the bobbins.

The function of the twister heads may be made clearer by reference to Fig. 2. They are steel tubes, designed with two tips at the top of the tube, and a jaw at the base which closes by centrifugal force when the tubes are revolved. The tips on the top of the twister heads agitate the yarn much as the tip of the spindle in mule spinning, giving a full, lofty yarn. Should a lean, worsted type of yarn be desired, it is necessary only to raise the deflector rods, which are located just behind the tubes, thus giving less shake to the yarn and consequently less loftiness.

Frame-spun yarns are evener than those spun on the mule, for this reason: the jaws on the bottom of the twister heads, closing by centrifugal force, grip the yarn as it passes through them, imparting a certain amount of mock twist (the amount controlled independently of other parts of the machine); but when the yarn leaves the nip of the jaws, this twist is all removed and the real twist inserted between the front rolls and the bobbins.

As the real twist is not inserted in the yarns until after the roving has been leveled by the drafting operation, one cause of uneven yarn is removed. On the mule an excess of twist will run to any uneven or twitty places in the roving, and this is not removed by any succeeding operation; whereas the mock twist is all re-

moved from frame-spun yarns, and they are leveled before any real twist is inserted.

The ring rail on the frames is stationary, with a moveable spindle rail. Thus the distance between the front rolls and the travelers is always the same, giving an even balloon and keeping the tension the same throughout the entire spinning operation.

Through a unique builder motion it is easily possible to make warp packages or filling bobbins. The simplicity of this device is shown by Fig. 3. Warp packages, according to manufacturers' specifications, contain from 100% to 200% more yarn than mule-made packages; and filling bobbins carry about 20% more picks per bobbin than bobbins from mules. It is easy to see the savings which can thus be effected in the spinning and succeeding operation.

However, it must not be assumed that the frames are perfect mechanisms, requiring no attention and producing flawless yarns. For example:

One of the yarns we use is a two-ply 15⅔-cut twist, of contrasting colors. We noted from the start considerable unevenness—so much that for a time we were unable to use any of the yarn produced. We had been using a cork roll contacting with the fluted steel front roll. It was found that after some use these corks became worn in places, allowing the roving to slip occasionally, thus producing a heavy place in the yarn. We tried grinding the rolls down until they were again smooth. This helped; but if we had continued, we would have been so busy grinding that there would have been no time for spinning. We tried a harder cork. We tried a composition rubber roll. We tried hollow steel and solid steel rolls. Of these the solid steel and the composition rubber rolls gave us the best results.

But the frames are not always at fault. In the case above mentioned, on weighing individual ends of roving from the same spool, we found that they varied from the prescribed 125 grains (for 50 yd.) as low as 117.5 grains. This difficulty was of course remedied in the card room.

Another difficulty which was forcibly brought to our attention after the frames had been in use for some few months was the breaking of spindle bands. Each band controls four spindles, two on each side of the machine. It took us approximately fifteen minutes to change and sew a band. We noticed that most bands broke at the sewed point. This was remedied, after some experimenting, by the simple expedient of a larger sewing needle and a heavier thread.

Style	Description	Cut	Weight of Roving (50 Yd.)	Weight of Yarn (25-Yd. Test Skein)	Draft	Front Roll, R.p.m.	Twist per Inch	Traveler Weight (in Grains)	Teeth Picked on Builder Motion	Twister Head Speed	Strength Required in Pounds
A	Green Mix[1]...	6½	270	89.25	1.51	113	5.5	16	15	1450	60
B	Dark Oxford[1]..	5¾	310	103.0	1.51	140	4.6	24	17	1250	50
C	White Wool[2]..	15¾	125	37	1.6	150	5.8	6	6–7	1300 to 1500	30
D	Grey Mix[3]....	13	138	44.85	1.53	135	8.5	10	12	1600	50–55
E	White Wool[4]..	20	100	29.2	1.60	120	7.5	6	4	1300	30

[1]For knitting. [2]For knitting and weaving. For baseballs. [4]For weaving.

Breakage of twister-head bands also came in for discussion. Although it does not take so long to change one of these bands, nevertheless 120 spindles (one machine) had to be stopped every time a change was made. We are now experimenting with a rope band, slightly longer than the usual one, which is run around two twister-head pulleys and tied with a common square knot, instead of being run around only one, as in the case of the hooked rope. This, of course, cuts the breakage in half, or nearly so.

Considerable time was lost at first in making necessary changes for different styles of yarn. However, after a short time this problem took care of itself. By tabulating the machine settings for the different styles, it was often possible merely to look at the table, and proceed without any guesswork. (See section above.)

Lubrication of traveler rings also called for special attention. We had been oiling the rings about every four hours, using an ordinary spout oil can. This wasted much oil, and the rings were properly lubricated for only a small portion of the four hours. A new method was devised, each girl being given an open can of oil and a small brush. By use of these the time required for oiling was considerably lessened, as was the wasted oil. The rings were then oiled every hour or two.

At present we are experimenting with automatically lubricated rings, using a wick and a small oil well located on the front of the ring rail. With this method it is possible to refill the oil wells without stopping the machines at all. Also the frequency is hastened.

We draw the following conclusions: Under favorable conditions the machines will produce twice as much per spindle as the mule; will successfully handle properly carded wool, cotton and rayon mixtures, shoddy, rags, etc.; can be used, in addition to ordinary spinning, for the manufacture of core yarns, mock twist, and reverse twist, and as a twister (from builder's specifications); and require one girl per 120 spindles. (Under favorable conditions one girl can tend 180 spindles, or more.)

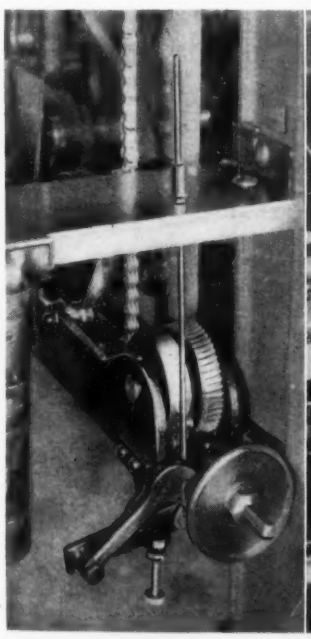
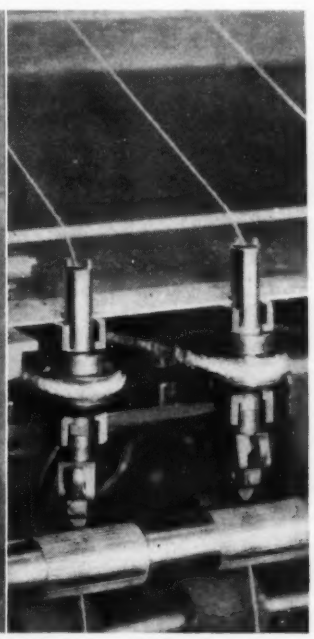


Fig. 3. Builder motion



Whitin Machine Works

Fig. 2. Close-up of twister heads

Machine Soaking

OF SILK IS GROWING TREND AMONG THROWSTERS

By D. S. Chamberlin, D.I.C.
National Oil Products Co., Harrison, N. J.

SILK soaking, the first operation in the treatment of silk for the hosiery and broad-silk industries, has for its purpose the softening of the fiber by soaking it in aqueous emulsions of soap and oil, sulphonated or soluble oils, or various combinations of these oils and soaps, with added softening and hygroscopic agents. This soaking of silk renders it soft and pliable; reduces static electricity; and leaves in the silk soaps, oils, or other agents which cause an increase in weight. Soaked silk absorbs water readily, and is in a condition which best permits its running in the throwing plant, as well in the knitting or weaving mill.

At first soaking was carried out in tubs, half barrels, or large barrels. The skeins were generally opened and placed in mesh bags or held together loosely with tie strings. Experience soon showed that a rectilinear tub conformed better to the layout of the skeins and that the soaking liquor had a better chance to diffuse through and around the parallel layers of skeins. Later the porcelain-lined bath tub was found to be satisfactory for silk soaking. Further developments resulted in wooden tubs lined with metals varying from zinc and copper to the non-corrosive alloys such as monel metal. This tub has ample capacity to contain a bale of silk (135 lb.) with an emulsion bath of 75 to 100 gal.

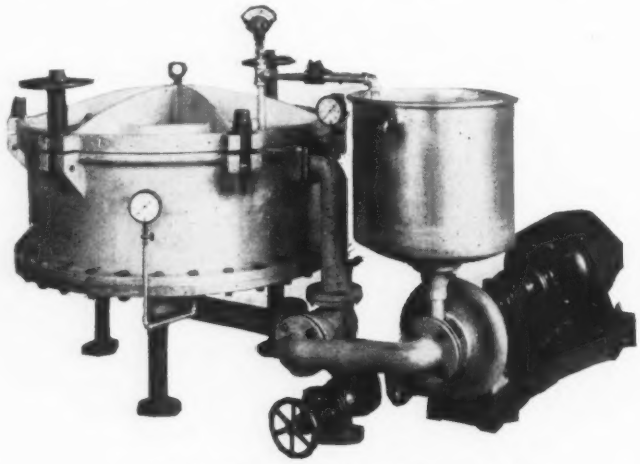
Tub Soaking

In tub soaking, some throwsters just release the skeins from the book and allow these twisted skeins to find their position in the soaking tub. Others place one or more books of the untwisted skeins in mesh bags, and soak and handle the skeins in this way. Whatever way the silk was soaked in the tub, the throwster developed methods which gave him yarns that were soft, had a fairly uniform take-up and conditioned well through the throwing operation. When the silk had been placed in the tub and wet out by the proper emulsion, it was generally assumed that in most cases the silk was in a fairly safe position for 10 hr. or longer. Many throwsters believed that the actual soaking, as far as lubrication and take-up was concerned, was over in a couple of hours, but felt that the continuous soaking for a longer time softened the hard gum spots more completely and resulted in more uniform take-up.

The opinion was held by some that there were better methods for soaking silk other than the quiet soaking bath, since the lack of motion in the soaking liquor in contact with the silk tended to give uneven penetration, as well as poor tinting. One of the first forward methods of soaking to be tried was the circulating bath. The idea was to circulate the liquor in the bath at varying rates of flow, and by this constant return of the liquor keep the bath in a homogeneous condition. The fact that this system has been very little used is an indication that it had no particular merit. Some throwsters tried a rocking bath, but with little success. Others tried spraying the silk as it lay exposed in thin layers; here again, the lack of uniformity of take-up and softness condemned the idea. More recently there have been developed mechanical methods for the soaking of silk in which machines are employed which have been designed particularly for this operation. More information will be given regarding the origin of the first silk soaking machine in a later paragraph of this article.

The Emulsifier

A few years ago the Pfeiffer Silk Corp. saw the need of a method of silk soaking more rapid than was in general use. In this connection they interested T. P. Gates, an expert in the field of fabric dyeing and finishing, to consider the problem of mechanical soaking of silk. Mr. Gates attacked this problem by making a careful study of the fundamentals of silk soaking methods; and after considerable experimentation, the Gates-Pfeiffer Engineering Co. put on the market the Gates-Pfeiffer "Emulsifier."



Franklin Process silk soaking machine

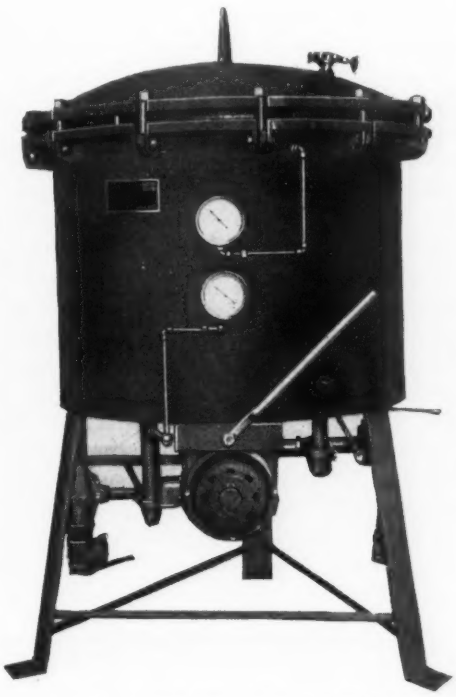
In this machine the soaking liquor is circulated through and around the silk from the force of a circulation pump. The apparatus in general is comprised of a cylinder which can be covered with a heavy cover that can be lugged down tightly. Inside this cylinder is another cylinder situated concentrically in which the silk is placed.

This internal cylinder is situated over a false bottom, and the silk is held in place by a perforated plate suspended from the cover. The liquor inlets and outlets are all at the bottom, one opening being under the false bottom that sustains the silk, and the other being in the annular space between the outside and inside cylinders. The equipment is built of a non-corrosive alloy which is not attacked by the soaking liquors.

The silk can be placed in the soaking machine as unopened skeins, or just with their noses opened, or in opened bundles. The capacity of the machine is normally one bale, but reduced quantities of silk, down to 50 lb., can be soaked by raising the perforated bottom to that height which will just take the weight of silk.

The soaking liquor is made up in suitable tubs or tanks apart from the machine and can be fed to the Emulsifier by means of a pump on the machine. As the liquor is pumped in, an air valve on top of the cover allows the air in the silk and the tank to pass out as it is displaced. It requires about 120 gal. of liquor to soak one bale of silk and to fill the machine completely. After the silk is in the machine, by the adjustment of one lever, the soaking liquor can be so directed that the liquor comes up under the silk in the internal cylinder. As the liquor flows up and around the silk, it overflows over the edge of the cylinder into the annular space and is sucked out at the bottom to return through the pump under about 15 lb. normal pressure up through the silk.

The cycle of liquor flow can be directed over periods of time at the option of the operator, so that an 80-min. treatment—a 10-min. flow down through the silk, 10 min. up through the silk, 30 min. down, and 30 min. up—will result in a complete and uniform soaking. By using this type of soaking machine, the soaking materials can be reduced from 25 to 33⅓% of the amount necessary in regular tub soaking.



Gates-Pfeiffer "Emulsifier"

Silk Soaking Machine

Another type of equipment is the Franklin silk soaking machine, manufactured by the Franklin Process Co. This equipment is similar in principle to the Franklin package dyeing machine, but is modified to meet the particular requirements of the throwster. This machine holds varying quantities of silk—less than 100 lb., 100 lb., or 130 to 135 lb.—depending upon the unit of weight used by the throwster. It consists essentially of a cast-aluminum tub with a false bottom protecting a liquor inlet and a waste liquor outlet, and a heavy cast cover carrying a perforated plate which allows when the cover is clamped in place, a free circulation of liquor above the silk and freedom to the outflow or inflow of soaking liquor. On the same base and connected with the tub is a motor-driven centrifugal pump connected with the tub in conjunction to an overflow and a liquor-containing reservoir.

To operate this machine, the silk is placed in the tub, and the cover is then put in position and clamped in place by heavy throw bolts. The volume of the soaking emulsion should be between 70 and 80 gal., so that there will be sufficient liquor to completely wet out the silk, displace all the air in the tub, and be in such excess that there is a visible flow at all times into and through the reservoir head.

In order to obtain uniform soaking and tinting, a valve arrangement is so placed between the pump and the tub that the liquor can be cirulated up through the silk mass or down through the mass. It has been found that a convenient running schedule, after the air has been eliminated, is 10 min. circulation down through the silk and 10 min. up, then 30 min. down and 30 min. up. The pressure of liquor circulation will vary, depending on the way in which the silk is placed in the tub, but the working pressure is usually from 10 to 15 lb. per sq.in. With this method a bale of silk can be thoroughly soaked and tinted in less than 2 hr. By a proper adjustment of the formula, this time can be greatly reduced so that in a twin-tub outfit, two bales of silk can be soaked in a little more than 1 hr. By the use of this machine, there is a great saving of time and space over the tub soaking; and if the soaking formulas are properly balanced and adjusted, 25 to 33⅓% of the soaking materials can be saved in obtaining a normal take-up.

The idea of machine soaking originated with the Kahn & Feldman Co., Brooklyn, N. Y., and with H. A. Norris, the president of the Colonial Knitting Mills, Philadelphia. During the Knitting Arts Exhibition of April, 1925, Mr. Norris and N. Lewis and other officials of the Kahn & Feldman Co. presented their thoughts to the American Laundry Machinery Co. and so impressed this company with the possibilities of such a machine that it undertook the task of such a development.

On July 30, 1926, the first machine was shipped to the Kahn & Feldman plant, in Brookyn. Incidentally, this original machine has been in continuous operation since its installation. Further developments were made, however, and the American Laundry Machinery Co. added many new features to the machine as a result of experiments carried on in the field and as suggested by its users. A second machine with all the new features was placed in operation at the plant of the Parkersburg Silk Mills, a subsidiary of Kahn & Feldman, with such excellent results that its manufacturer now has placed it on the market as a standard machine for silk soaking.

Silk Impregnator

This soaking machine, the "Silk Impregnator," operates on the evacuation principle. The soaking unit consists of two soaking tubs and a heavy piston cover or head which can slide down within each tub. The cylindrical tubs, built of steel, are carefully finished so that the heavy head carrying a false bottom, can slide down to the bottom of either tub, giving a vacuum-tight fit.

The silk—either as single unopened skeins, or with their noses opened, or in bundles—is placed in position in one tub first. As the silk is being placed in position, the soaking liquor, which is contained in a supply tank, is

forced through a sprinkler head by a small centrifugal pump. The liquor is sprayed over the silk as it is put in place, and the spraying is so timed that when the last silk is in position, the liquor used is just consumed in the wetting out of the silk. The heavy piston head is then brought into play and is let down onto the surface of the silk. Carried in the head at the center is a 3-in. pipe, closed at the top, which enters over an open tube standing in the center of the tub. This open pipe extends up into the closed pipe carried by the head as the head settles into position resting on the silk. When the vacuum pump is started, the air in the silk and in the chamber under the head is sucked out, allowing the air pressure on the upper side of the head to force the heavy head down on the silk. This evacuation goes on, until a vacuum gage on the cover shows around 85 to 90% evacuation. By shutting off the vacuum pump, and opening a valve in the plunger head of the tank, air is made to rush in, and the expanding silk causes the head to rise. If the head be lifted free from the silk and the tub so that the silk mass can be observed, it will be noted that 2 or 3 in. of liquor stands on the silk. This liquor, however, is rapidly taken up into the silk, and in a minute the surface of the silk mass is entirely exposed.

This cycle can be repeated as many times as necessary. When soaking has been completed, the head is lifted and moved to one side. The silk on being removed from the chamber carries with it all the liquor soaked up in the silk, so that when the last bundle of silk is removed, the tub is absolutely dry.

The amount of soaking solution used in this type of machine runs to 1 gal. of liquor to 5 lb. of silk; thus for a 135-lb. bale of silk, 27 gal. of soaking liquor is used.

On account of the concentrated liquor applied to the silk, it has been found that the take-up of the silk is much higher than in other methods of soaking; and therefore less soaking material is necessary to get a particular take-up. On the other hand, the silk being so receptive to this concentrated solution, tints when used in the soaking liquor tend to fix themselves and to stay at that point where the liquor spray hits the silk. To obtain uniform tinting, it is necessary to wet out all parts of the silk mass uniformly. Proper application of the tinted liquor depends on the efficiency of operation of the soaking room personnel.

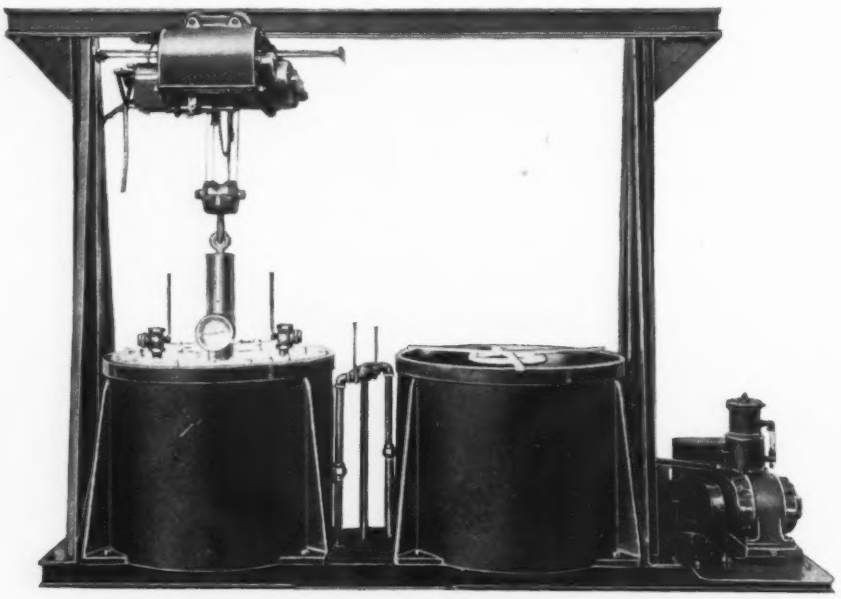
The capacity of this machine is rather flexible, varying from a minimum load of 20 lb. to a maximum charge of 170 lb. Since the ratio of soaking liquor to weight of silk is constant, if the machine is always evacuated to 85 to 90%, the actual pressure on any amount of silk will always be in the neighborhood of 15,000 lb. on the silk mass.

Time is an important factor in the operation of this machine. If the soaking-room operations are properly organized, a schedule such as follows can be set up.

No. 1 Impregnator		No. 2 Impregnator	
Filling and wetting down	6 min.	.....	.....
First evacuation	3 min.	.....	.....
First rest period	3 min.	Filling and wetting down	6 min.
Second evacuation	3 min.		
Second rest period	3 min.	First evacuation	3 min.
Third evacuation	3 min.	First rest period	3 min.
Third rest period and discharging	9 min.	Second evacuation	3 min.
		Second rest period	3 min.
		Third evacuation	3 min.
.....	.....	Third rest period and discharging	9 min.
Total cycle	30 min.	Total cycle	30 min.

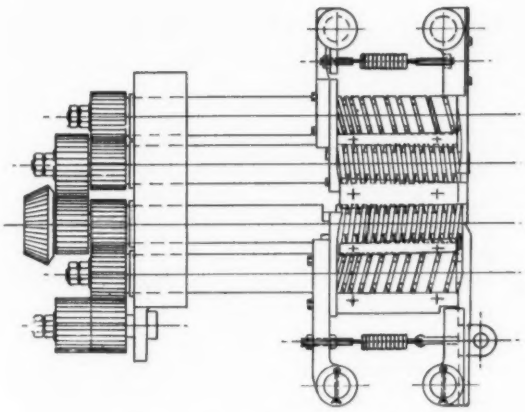
It is evident from the above schedule that by using the head in one tank during the rest period of the other tank, some saving in time is obtained. If silk and solution are ready for each tank after discharging, four bales per hour can be soaked in a machine unit.

In making a change from tub soaking to the machine method it is not necessary to obtain an oil which is particularly adapted to any one soaking machine, as the oil with which the throwster is familiar in his tub soaking method can be used successfully. However, in order to secure the highest efficiency from any of the machines, a properly adjusted soaking emulsion should be employed which will give the highest take-up and best results at the lowest price for ingredients.



American Laundry "Silk Impregnator"

Intersecting Gill



Faller head of an intersecting gill box

COMPLEXITY NO BARRIER IN BRADFORD SPINNING

By L. M. Harless

◆ *Although a number of Bradford-worsted spinners in this country and abroad have welcomed the advent of the intersecting gill box as a Bradford machine, there are still many who question the advisability of adopting it. One argument against the intersector is its complexity as compared with the ordinary gill. The author of this article points out that this factor is far from a serious one and offers some interesting facts regarding the faller motion, where most of the complexity lies.*

ONE of the customary and logical questions asked when purchasing a machine is, "What will it cost in repairs?" A complex machine is often looked upon as an expensive machine from this point of view; but this need not be, nor is it always, the case.

Complex machines are often fitted with safety devices, rendering them even more immune from accident and damage than simpler machines. The mule, with its safety catches, is an example; while the knock-off motions fixed to cone machines prevent castings from being broken and an excessive amount of waste from being made. Those who have not installed intersectors because of the supposed increase in the cost of repairs need no longer abstain from their use, for the shearing pin on the low back shaft is a "mullock" preventor and a safeguard against damaged fallers and pins. The shearing pin is the sole link between the two shafts or two parts of the shaft coupled with the pin. Obstacles such as twisted ends in the pins, looped slivers, or any other defect likely to cause trouble, shear the pin; and a threatened jam or faller lock is prevented before damage is done. Those who wish to reduce their repair bill should install intersectors instead of ordinary gills.

The faller head of an intersector is full of detail (see accompanying diagram), but for the greater part it is repetitive. The fallers are all of the same pattern, each driven in the same way by the four pairs of revolving screws. It will be seen that the screws are perfectly horizontal and parallel to each other, but the shape of the saddles causes the fallers to converge and the pins of the top set to intersect with the pins of the bottom set when passing forward with the wool.

The forward saddles of the lower faller set are shaped not only for intersecting but also for the easy vertical movement of the fallers. The fixing of these saddles is important; and they are firmly held by squarehead screws, which in turn are held from coming loose by a short stay-piece, shaped so as to enclose the screw heads, one at each end. The saddles should be kept well lubricated, allowing the fallers to move freely.

The return of the fallers to the back rollers is made on straight saddles. The return screws are not regularly cut, but are known as diminishing screws. On entering the return screws, the fallers are carried quickly back again, but the rate of movement gradually diminishes. This arrangement is mechanically sound, for there is a smaller number of fallers per set, and a slowing down of the faller movement before their sudden stop.

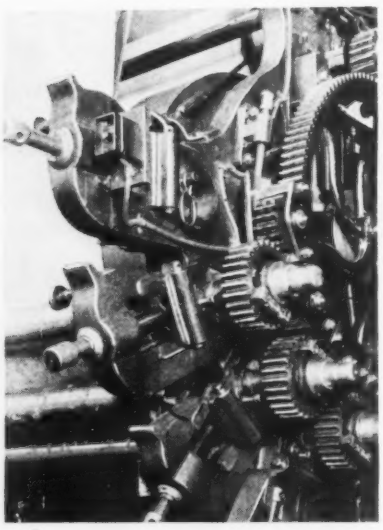
The top set of fallers runs in screws of the same diameter, pitch, and cut as those already dealt with; but they are mounted to alternate with the fallers of the bottom set. This contributes to the successful control of short wools; for with the withdrawal of the faller nearest the front rollers in the bottom set, there still remains in the slivers the pins of the first faller in the top set. When this is withdrawn, the first faller in the bottom set has approached nearest the front rollers. This close control, aided by the small diameter of the front rollers, gives the intersecting system its splendid control on the shortest wools, so that slivers containing 100% of noil fibers have been securely held to drafting.

The up-and-down movement of the fallers has not been neglected, and shaped conductors guide them to their new positions in the other screws. It is usual to have these fallers passing rapidly on account of their narrow pitch, usually $\frac{3}{16}$ to $\frac{1}{4}$ in. If these fallers could not be lifted and lowered at a high speed, the production of these machines would suffer because of the low pitch of the screw. Great care and skill have been expended on fashioning these conductors; and now that these machines have been fitted with Holdsworth's cams and disks, their high speed is attained without risk of mistiming or wrong entry into the screws.

There is a decided movement in favor of the intersecting gill box being used not only for short wools and botany, but also for fine and medium crossbreds. The makers have been inundated with orders, and this at a time when all other branches of industry have been exceedingly quiet. It is only since the machine was redesigned and made Bradford pattern that English-system spinners have been persuaded to adopt it.

Printing Gums AND THICKENERS—

THEIR TYPES AND PROPERTIES



DESPITE noteworthy improvements made during the last few years in the manufacture of printing gums, there is little scientific knowledge of the properties of a thickening agent which make it suitable or unsuitable for a particular purpose. For this reason the printer must rely almost entirely on experience and practical tests to guide him in the selection and use of a thickener. Such agents most commonly employed in textile printing may be classified as follows: (1) Starches—wheat starch, cornstarch, tapioca starch; (2) Starch derivatives—British gum, dextrins; (3) Natural gums—gum tragacanth, gum arabic, gum Senegal, locust bean gum; and (4) Prepared thickeners derived from insoluble gums—gum Bassora, gum Sheeraz. Other types of thickening agents which find special application will not be considered at this time.

Properties of thickeners of chief interest to the printer are those which govern color yield, brilliancy of shade, penetration, sharpness of design, ease of preparation, thickening power, freedom from frothing, rinsability from the printed fabric, action on doctor blades and rollers, and money value. Other factors influencing the selection of thickening agents are the material to be printed, the pattern to be produced, the dyestuffs to be employed, and the speed of the printing machine. Viscosity determinations, chemical analyses, and tests with a sample printing machine give some indication, but mill trial is the final measure of suitability.

The different starches—of which cornstarch and wheat starch are most important—vary somewhat in their properties, but in general yield a high color value; however, starches fail to give sharp outlines, good penetration, or soft handle; and are somewhat difficult to remove from the fabric by washing. British gums and dextrins, on the other hand, are easier to use, wash out more readily, and enable clear-cut designs, but do not give as high a color yield; for printing vat colors some authorities recommend British gums or dextrins prepared from tapioca to those derived from cornstarch.

Gum arabic and gum Senegal penetrate well, give clear outlines and brilliant shades, and are easily removed from the fabric; these gums are somewhat sticky and have a tendency to cause foaming unless precautions are taken. Gum tragacanth gives brilliant shades, and rinses easily, but does not give sharp outlines. Locust-bean gum is noted for its thickening properties, ease of preparation, good color yield, and brightness of shades; for vat-color printing it is employed in the Rongalite method. Gum Sheeraz and other thickeners prepared from insoluble gums give smooth and brilliant prints with sharp outlines, do not foam, rinse readily, and minimize scratching of the doctor blade; the color yield is less than with starch; they are used largely on silk and for other fine work.

By combining two or more thickeners it is often possible to secure results which cannot be obtained with any one compound. Thus, starch and a prepared gum in combination yield fuller shades than the prepared gum alone, and more brilliant colors, clearer designs, and softer prints than starch alone. A tabulation of the thickeners and combination of thickeners (aside from proprietary compounds) employed by various printers for direct printing of vat colors on cotton piece goods is given below. This compilation indicates the manner in which thickeners are combined for the purpose mentioned above, and it also serves to show how far removed from standard practice is the mixing of printing paste. The list follows: (1) British gum; (2) British gum—cornstarch; (3) British gum—wheat starch; (4) British gum—gum arabic; (5) British gum—gum Senegal; (6) Wheat starch—gum arabic; (7) Wheat starch—gum tragacanth; (8) Wheat starch—gum tragacanth—gum Senegal; (9) Cornstarch—gum arabic; (10) Cornstarch—gum arabic—gum tragacanth; (11) Dextrin — gum Senegal; (12) Locust bean gum; and (13) Locust bean gum—British gum.

Demand for vat-color prints and the increased popularity of silk and rayon fabrics have resulted in the development in recent years of a variety of new and improved thickening agents. There are, for example, on the market today specially prepared converted starches for vat-color printing on rayon; these gums are gritless and free flowing; have high thickening powers; do not stick to the rolls; wash out readily; and give fine, clear-cut lines, brilliancy of shade, high color yield, and good penetration. There is also available a water-soluble cellulose derivative particularly recommended for use in the Rongalite method of vat printing; when used in conjunction with starch, this thickener gives clear-cut designs and a good color yield. Finally should be mentioned the prepared thickeners which have been compounded to meet various requirements and which obviate mixing in the print works. These and other types of improved thickening agents deserve careful attention of the printer.

Delustering

UNDER MICROSCOPE CONTROL

By Edward F. Jordan

DELUSTERING of fabrics containing cellulose acetate is simple in theory but somewhat difficult in practice, especially in those cases where the degree of delustering must be maintained at some arbitrary standard. Simple superficial examination of the fabric during the delustering process is not sufficient, because its aspect at that time is not always identical with its appearance at a later stage. This is due to the fact that there is a tendency for the luster to return during dyeing, finishing, or other subsequent processing. Again, it is difficult to recognize the degree of delustering at this stage when this degree is intermediate between a fully delustered and a bright finish. However, it has been discovered recently that the microscope offers simple means for overcoming this difficulty.

Fig. 1. Photomicrograph of normal and delustered cellulose acetate—compare pitted opaque appearance of delustered fiber (left) with transparent normal acetate fiber

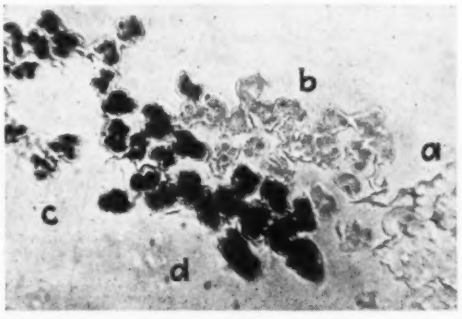


Fig. 2. Cross-sectional views of cellulose acetate—a, normal fiber; b, fiber at first stage of delustering; c, partially delustered fiber; d, fully delustered fiber

Ordinarily, delustering is done in a boiling soap and phenol bath containing 1% of soap and 0.1% of phenol. The degree of delustering is most conveniently observed by examining the fibers under a microscope after the material has been well washed and dried. Drying should be carried out quite slack, as stretching tends to restore the luster, especially since immediately after delustering, the cellulose acetate is in a very plastic condition.

If a fiber taken from the delustered material is mounted on a glass microscope slide with water and examined, it is noticed that each individual filament appears slightly roughened, but otherwise lustrous and nearly transparent. On the other hand, if the sample is mounted in glycerin, the fiber appears to be more or less opaque and pitted with small holes, and in this respect is very much like a sponge. In Fig. 1 are shown longitudinal views of normal and delustered fibers. It is much more satisfactory, therefore, to make the microscopical examination with the specimen in glycerin.

Microscopic Examination

Control of delustering is carried out by examining samples of the material from time to time under the microscope. When the fiber attains a sufficiently sponge-like appearance, the delustering process is stopped. After a little practice, it is not difficult to recognize this stage; but at first it can be determined more easily by comparing the appearance with that of a sample of cellulose acetate which is fully delustered.

[An investigation of this method indicates that examination of fiber cross-sections permits even more accurate control of the delustering process than is possible by longitudinal views. Thus, in Fig. 2 the progressive action of the delustering bath is shown clearly, *a* being the normal fiber; *b*, the fiber at the first stage of delustering; *c*, the partially delustered fiber; and *d*, the fully delustered fiber. This further study was made possible through the cooperation of Prof. E. R. Schwarz, who prepared the photomicrographs showing longitudinal and cross-sectional views of cellulose acetate, and through that of the Celanese Corp. of America, which supplied the fabrics employed in the delustering experiments.—*Editor.*]

The glycerin method allows the progressive nature of the delustering process to be observed, and it also throws light on the character of the process itself. With some types of acetate yarn the holes formed by the delustering process are of uniform size and evenly spaced. With others, the holes are irregular, both as regards size and spacing. It is assumed that these differences are caused by lack of uniformity in the composition of the cellulose acetate from which the yarn is formed.

Action of Delustrants

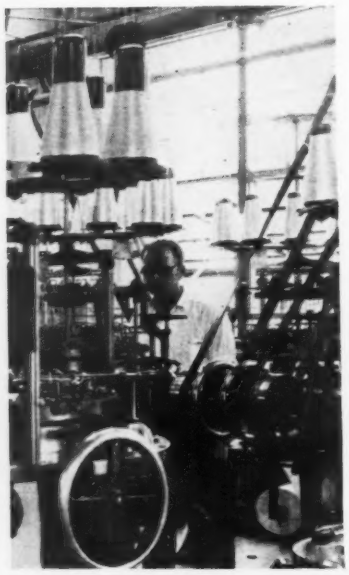
The sponge-like character of delustered cellulose acetate is probably due to the bursting or formation of steam bubbles on the surface of the fiber during the boiling treatment when no phenol is used in the soap liquor. On the other hand, when phenol, is employed, the holes formed may be due to solution of the cellulose acetate, since this is known to be easily soluble in concentrated phenol solutions. If the delustered rayon is stretched, these holes tend to coalesce, the filament in turn tends to become continuous, and thus there is a regain of luster.

In examining delustered acetate by the method described above, it is advisable to use pure anhydrous glycerin, since this gives clearer definition than does glycerin containing water.

Finding Yarn Costs

IN CIRCULAR KNITTING MILLS

By S. M. Peterson



YARN costs in circular knitting can be determined accurately by practical mill tests. Typical of the procedure employed by the writer is the following test on 100 doz. men's union suits. Garments of the high-neck, long-sleeve, ankle-length style were selected for the test. They were knit on twelve-cut, latch-needle machines.

The following table shows the sizes and assortment of garments made during the test:

Sizes cut	34	36	38	40	42	44	46	
Machine sizes	17	18	19	20	21	22	23	
Dozens cut	1	8	20	27	20	16	8	= 100 doz.
Rises	..	1	2	3	4	5	6	
Total rises	..	8	40	81	80	80	48	= 337

337 ÷ 100 = 3.37; average size 40.37.

The combination of yarn used comprised one end of 45s 50/50 worsted in the same feed with a 50s C.P., alternating in every other feed with a 20s K.P. The following calculations show the theoretical percentages by weight of the various yarns in this combination:

1 end of worsted is equal to a 30s cotton yarn. 120 yd	=	33.3	grains
1 end of 50s C. P.	=	20	grains
1 end of 20s K. P.	=	50	grains
Total weight of yarn in combination	=	103.3	grains

45s Worsted	33.3	÷ 103.3	=	32.24%
50s C.P.	20	÷ 103.3	=	19.36%
20s K. P.	50	÷ 103.3	=	48.40%

In order to find the actual yarn cost, it was necessary to determine the actual amount of invoiced yarn as paid for which was used to knit cloth for the 100 doz. Therefore each case was weighed, the yarn taken out, all papers removed from the cones, a count made of the cones in each case, and the empty cones weighed. This gave the weight of the yarn received. Since worsted yarn was shipped on tubes, it was necessary to wind this yarn and weigh the empty tubes.

A case of the 45s worsted gave a net weight of 374 lb. compared with an invoiced net weight of 377 lb., a loss of 0.8%. A case of the 50s C.P. gave a net weight of 281 lb. compared with an invoiced net weight of 304.78 lb., a loss of 7.802%. Four cases of the 20s K.P. gave a net weight of 1,080 lb. compared with an invoiced net weight of 1,151.5 lb. a loss of 6.2006%.

The actual weights of the various yarns employed in making the 100 doz. garments were as follows: 45s worsted, 483.6 lb.; 50s C.P., 290.4 lb., 20s K.P., 736.5 lb.; total, 1,510 lb. These actual weights were now converted to the weights as invoiced and the percentage of each yarn in the combination was calculated.

45s Worsted	483.6 ÷ 99.2	= 487.500 lb. =	30.71%	@ $1.10 per lb. =	0.3378
50s C.P.	290.4 ÷ 92.198	= 314.975 lb. =	19.84%	@ $0.60 per lb. =	0.1190
20s K.P.	736.5 ÷ 93.8	= 785.181 lb. =	49.45%	@ $0.14 per lb. =	0.0692
Total		1587.656 lb. =	100.00%	Total cost per lb. =	0.5260

The following tabulation shows the yarn losses and credits which must be taken into consideration in knitting, scouring and cutting:

Invoiced weight of yarn used	1587.65 lb.		
Weight of cloth knit	1499.00 lb.		
Loss from invoiced yarn to knit cloth	88.65 lb.	=	5.583%
Weight of scoured cloth	1431.00 lb.		
Loss from knit to scoured cloth	68.00 lb.	=	4. 54%
Loss from yarn to scoured cloth	156.65 lb.	=	9.867%
Weight of cut dozens	1122.00 lb.		
Cutters' waste	155.00 lb.	=	12.138%
Total of scoured cloth used	1277.00 lb.		
Scoured cloth left over	154.00 lb.		
Original yarn weight of cloth left over	170.86 lb.		
Invoiced yarn used for 100 doz.	1416.80 lb.		
Loss from yarn to cut doz.	294.80 lb.	=	20.807%
Yarn used for 1 doz.	14.17 lb.		
Weight of 1 doz.	11.22 lb.		

It is evident from these figures that in calculating the cost of this type of union suit, the yarn weight per doz. is 14.17 lb. It should be noted that the sleeves were shaped at the armholes according to tailored fashion, and that the armholes we shaped to fit the sleeves; this accounts for the high percentage of cutters' waste. If the sleeves had been left straight at the armholes and the armholes not shaped to suit, as is the practice in the cheaper lines, the cutters' waste would have been much smaller.

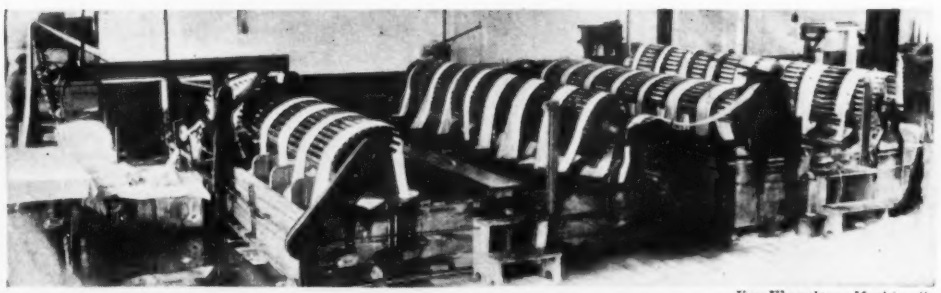
A form suitable for recording the results test is shown in Table I. Results of the test obtained on another style of garment are also given to indicate the manner in which various tests can be recorded on one form.

TABLE I.
Form for recording results of yarn-cost tests

Style No.	Per cent loss from invoiced yarn to knit cloth	Per cent loss from knit cloth to scoured cloth	Per cent loss from invoiced yarn to scoured cloth	Per cent cutters' waste	Per cent loss from invoiced yarn to cut dozens	Average weight of invoiced yarn used	Average weight of cut dozens	Loss from invoiced yarn per dozen to cut dozen	Cutters' waste per dozen expressed in lb.	Average size on which test was made	Schedule used
Mens U.S. 8 HNLSAL	5.583	4.54	9.867	12.138	20.807	14.17	11.22	2.95	1.55	40.37	21
Men's U.S. 10 HNLSAL	5.	5.886	10.02	13.46	21.2	16.5	13.	3.5	1.75	42.	19

The Tin-Lead Process

IN SILK GOODS WEIGHTING



Van Vlaanderen Machine Co.

Modern equipment plays an important part in the silk-weighting process

RENEWED controversy over the tin-lead method of weighting has followed the recent announcement that one of the larger dyehouses in the Paterson district has been licensed to process silk under the Berg-Imhoff patents. Questions of particular moment concern the effect of lead weighting on the strength and durability of the silk, and the possibility of lead poisoning resulting from the use of fabrics containing lead compounds. At present, unfortunately, no categorical answer can be made to either of these questions. The known facts can be presented, however, and the opinions of both users of the process and disinterested authorities reported.

The tin-lead process consists essentially of two operations: (1) treatment of the silk first with tin chloride solution at about 20° Bé. and then with sodium phosphate solution at about 7° Bé.; and (2) treatment with lead acetate solution at 2 to 3° Bé. and then with a second sodium phosphate solution. Either or both these steps may be repeated as often as is necessary to obtain the required amount of weighting; additional stages may be interposed (for example, aluminum sulphate, sodium silicate, and acetic acid treatments); or other modifications, such as omission of the final phosphate bath, may be made. Whatever the particular sequence employed, the soluble lead acetate is said to be converted into an insoluble lead salt which is firmly affixed to the silk.

The chief advantage cited for the tin-lead process is that it permits the incorporation with the silk of larger amounts of weighting materials than are possible with the ordinary tin-weighting process. The amount of weighting which may be added varies according to the exact procedure employed and may be as high as 200% of the weight of the silk. Thus, according to the patent specification, if 100 lb. of degummed fiber is given three passes through the tin chloride and sodium phosphate baths, 30 lb. of weighting is added; after a subsequent treatment with lead acetate and sodium phosphate, an additional 65 lb. in weight is obtained; and after a second lead-acetate treatment, 50 lb. of weighting is added.

Weighters using the tin-lead process state also that it is less injurious to the fiber than are the usual tin-weighting methods, silk fabrics which contain 140% of tin-lead weighting being claimed by them to be equal in strength and durability to those which contain 70 to 80% of tin weighting. While no data supporting this statement have been made generally available by the originators of the process, we are informed by a consulting textile chemist that tests which he has made indicate that lead-weighted silk is on the whole more durable than straight tin-weighted silk. Further research by other investigators is needed, however, to corroborate this opinion.

More important than the effect of lead weighting on the silk fiber, is the possibility that lead poisoning may result from the use of lead-weighted fabric. On this point, the users of the tin-lead process state that the lead compound affixed to the fiber is insoluble both in water and acetic acid, and is non-poisonous. They point out further that although upwards of 100,000,000 yd. of silk fabrics containing lead weighting has been placed on the market during the last six or seven years, no cases have been reported of lead poisoning which are attributable to the use of these fabrics. These contentions are by no means conclusive, although they are tentatively supported by the opinions of a number of research chemists and health authorities who are in agreement that the possibility of lead poisoning resulting from the wearing of garments containing lead weighting is remote. Here again, more data are needed.

In view of the fact that there has been no absolute proof offered of the continued inertness of lead weighting, one of the larger retail stores in the metropolitan area has refused to purchase silks weighted with lead until conclusive evidence that lead-weighting does not constitute a health hazard is forthcoming; other purchasers however, have accepted the claims of the lead weighters as prima facie evidence of their durability and harmlessness, and are continuing to buy lead-weighted fabrics. Investigations now being made are expected to determine definitely the effect of lead weighting on the strength and wearing qualities of silk and on the health of users of weighted fabrics.

MIST AND FOG PREVENTED BY UNIQUE

Dyehouse Construction

By Heinrich Zieger

Fig. 1. Warm, dry air forced into the dyehouse absorbs steam and keeps the room free from mist

PRESENCE of chemical-laden vapors in a dyehouse is injurious to the health of employees and makes for unsatisfactory and uneconomic working conditions. In addition, drops formed by the condensing of steam are often responsible for serious damage to the materials being processed. For this reason prevention of mist and fog in the dyehouse is a problem which for some years has engaged the attention of engineers. Recently two plants have been erected—one in France and one in Germany—in which removal of steam is accomplished by a unique method of dyehouse construction.

Removal of Steam Important

In older dyehouses it was the practice simply to suck out the steam, but this method did not completely remove the vapors and it failed to prevent water drops. The construction of high-roofed buildings also proved unsuccessful, as rooms of this type required a large amount of steam for heating, and at the same time did not prevent mist.

More recently it has been demonstrated that an important factor in fog prevention is the bringing into the room of warm air which is able to absorb the steam. Experiments made along this line showed that the mere changing of air was not sufficient to remove the steam, and attempts were then made to solve the problem by raising the temperature of the air before it was introduced into the room. Following the discovery that still, hot air was injurious to the health of the workers, various systems were evolved for blowing warm, dry air into the dyehouse through metal ducts. In many cases, however, these systems failed to function properly, as insufficient thought was given the method for leading away the damp air.

It became apparent then that successful removal of steam is largely a question of how to admit the warm dry air and how to lead away the damp air. From the standpoint of economy, it is important also that the cost of the dyehouse and the steam-removal system be in normal proportion to the production so that it will not entail excessive overhead charges. Again, it is necessary

before construction of the dyehouse is started to make certain that the particular steam-removal system is selected which will function most satisfactorily in the plant under consideration.

Successful Method Found

A method of fog prevention which has been employed successfully in Europe for a number of years, makes use of warm air, which is introduced into the dyehouse under pressure. In this system all dyeing machines, vats, and other equipment are placed in two rows—one on each side of the room—with a wide passageway or aisle in the center. In this way the room is divided into three sections, the two containing the machinery being called the working rooms. To separate the working rooms from the passageway, partitions are fastened to pillars which are located on each side of the aisle and which serve also as supports for the roof. The partitions are connected with a funnel-shaped roof. Extending above the roof are ventilating stacks.

Adjacent to the skylight, which is the highest point of the dyehouse and runs the length of the building, are two concrete ducts through which warm air is introduced into the room. The air is warmed in a preheating room before it is blown into the ducts, and the amount admitted to the dyehouse is regulated by means of louvers located in the ducts. This warm air, which is forced under pressure into the aisle, passes under the partitions, over the machines, through the ventilators, and out of the building. During its passage through the rooms the warm, dry air absorbs any steam which is present; and in this way the building is kept free from mist and fog. A dyehouse built according to this plan is shown in Fig. 1.

The chief drawback to the system described above is the fact that the partitions prevent the passage of light from the skylight into the working areas. It is necessary, therefore, to employ artificial lighting or to provide windows in the side walls of the dyehouse.

Mist-Screen Solves Problem

In order to overcome this objection, the writer has developed a modified method of dyehouse construction which eliminates the need of windows or artificial lighting in the working rooms, the light entering only through the skylight. This type of building is made possible by the use of a so-called "mist-screen" which is attached to the roof. This mist-screen consists of an expanse of translucent glass which hangs down into the room and permits the passage of light into the working spaces. Since the mist-screen requires no pillars or other means of underneath support, an uninterrupted view of the whole room is afforded. Incorporated with the mist-screen is an arrangement which removes any deposits of steam, and in that way prevents the formation of water drops. A dyehouse of this type is shown in Fig. 2.

Power Requirement Small

Dyehouses built according to this plan in France and Germany have demonstrated that the power requirement for removing the steam and vapor is not excessive, and that the air does not cause discomfort to the workers as it is introduced at a comparatively low temperature. In these buildings, the entire roof and the steam-removal system are of iron-concrete construction, no iron being visible. To guard still further against rust, all parts are treated with corrosion-resisting enamel. Speedy disposal of waste liquors from the dyeing machines is an important factor in limiting the formation of fog and mist. This problem is solved by providing adequate and well-placed drains, and by sloping the floor so that water will run away quickly, without causing either the operators or the machines to get wet.

Fig. 2. The mist-screen, an expanse of translucent glass attached to the roof of the dyehouse, permits passage of light into the working spaces

Who Pays FOR TECHNICAL PROGRESS—

MACHINERY BUILDER, MILL, OR CONSUMER?

◆ *In recent years much has been said and written by master mechanics and others in the mill game in favor of the mill making or having made its own replacement parts. The machine-building industry is now becoming articulate on this subject.*

SUPPOSE a machinery builder develops, after extensive research and experimentation, an improved spinning-frame part which is capable of producing a superior yarn at a cost less than that of the yarn previously spun. He has conducted this development frankly in his own interest with the idea that mills will find the improvement in quality and saving in cost sufficiently attractive to make it worth while for them to purchase the new part. If he had not developed this part, the mills would not be able to produce the improved yarn and could not spin at any lower cost than formerly. The consumer could not obtain so satisfactory a product and might have to pay a higher price for what he did obtain. Who should be expected to pay for the research and experimentation which the machinery builder conducted?

The consumer might properly be expected to pay through the agency of the mill for the improvement in quality if it should prove sufficient to make the higher prices seem reasonable; but the consumer can hardly be expected to pay for that portion of the development which led to a reduction in mill costs. In fact, he might be expected to benefit from that reduction; although, with the present unfavorable relation between mill costs and selling prices, the mill is justified in withholding this saving from the consumer.

Should the machinery builder stand the cost? He conducted the work to improve his sales. He naturally assumes the expense of the undertaking temporarily, but must get back this cost in his sales—else the cost becomes a loss. Beyond the improvement in his sales, he derives no benefit from his contribution to the advancement of textile-manufacturing technic. His only customer is the mill, and the question as to whether he is reimbursed for his trouble or suffers a loss depends entirely upon whether or not the mill buys his product.

It is the mill which benefits most from savings in cost, as such savings increase the margin of its profit. Even if some of these savings are passed on to the consumer in the way of reduced prices, the mill benefits from this procedure in increased sales. Improved quality also benefits the mill in increased sales. It is therefore evident that, if the economic scheme which makes such developments possible is to continue, the mill must see to it that such contributions to progress are paid for. It is up to the mill to decide whether or not any of this expense is to be shared by the consumer.

Suppose the machinery builder establishes a price on his new spinning-frame part sufficient to cover the cost of manufacturing it and a reasonable share of the cost of developing it through research and experimentation. The mill finds that it can buy one or two of these parts from the machinery builder and have a large number of duplicates made by its own mechanical department or by a general machinist without, in either case, having to share in the development costs. Is the mill assuming its proper responsibility to the organization which has rendered it this important service?

The following comments are abstracted from *Cotton Chats,* published by the Draper Corp., Hopedale. Mass.:

"The textile mills have a long list of casualties. The shops that have kept the industry supplied with the latest and best machinery are even worse off as a whole than the mills. Do the mills realize what the break-up of these shop organizations would mean to the industry? Without the shops that produce improved machinery, the textile mills of the United States would soon add to their present troubles a degree of foreign competition they have not known since the last period of low tariffs.

"The textile industry has been trying to solve its problems by cooperation—one for all and all for one. That cooperation should include the shops that build the industry's machinery. The shops have always recognized their duty to the industry—their self-interest in its welfare. What would the industry do without the service the shops have given to keep the textile industry of America one lap ahead of the rest of the world? Without cooperation, that service is in danger. The highest type of self-interest is that which sees its own interest in cooperation with its fellows. This is the sort of self-interest the textile industry needs now in every branch."

The following comments are from the thorough discussion of the subject in the *Bulletin,* published by Saco-Lowell Shops, Boston, Mass.:

"The mill accountant neglects to charge to the machine shop the proper quota of taxes, interest on the money invested in equipment; makes no charge for floor space, light, or power; and figures that his home-made parts cost the price of the casting plus what he pays for direct labor.

"If the mills in general are going to limit their purchases to parts which they cannot procure elsewhere, and secure the bulk of their replacements from other sources, it can readily be seen that the final result will be a raising of prices on the few highly specialized parts, or else the machinery builder will be forced to liquidate and go out of business. We feel sure that when this day comes it will be an unfortunate one for the textile industry in America. Again the industry will be dependent on the whims and fancies of the foreign machinery builder.

"The mills need the machinery builders. They need their resourcefulness, their restless urge for betterment, and their inventive genius, the combination of which has made American textile machinery unexcelled as to production, operation, durability, and appearance.

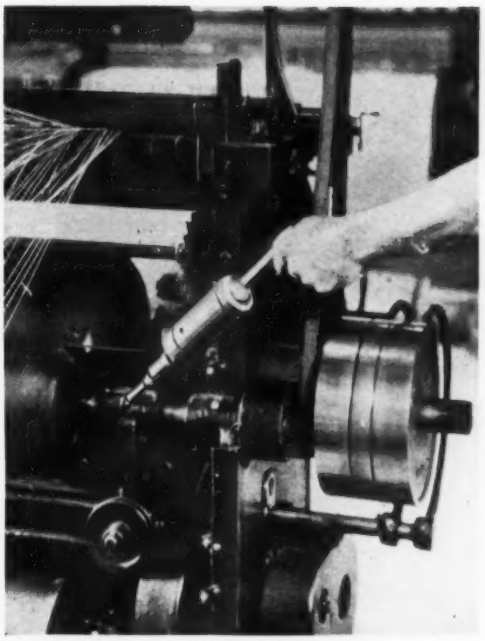
"We feel certain that there is no executive in the industry who, realizing what the machinery builder has meant to the industry, would continue to countenance present conditions, much less encourage them, more especially since the amount generally saved through purchasing inferior parts is quite insignificant."

Pressure Lubrication

EFFECTS ECONOMIES AT WAYPOYSET

LOWER labor cost, lower lubricant cost, and lower maintenance cost are three benefits that the Waypoyset Mfg. Co., Central Falls, R. I., has derived from the installation of a high-pressure lubricating system throughout most of its plant. Disregarding for the moment the savings in maintenance cost—which in many cases bulk very large—the savings in labor and lubricant alone have been sufficient to pay for the cost of installation less than a year.

Oil is admittedly the best lubricant for rapidly moving parts. On the other hand, with the pressure system there is no danger that the lubricant will splatter and spoil fabrics, or that it will be wasted through carelessness in placing it around the bearing rather than in the bearing. Likewise there is no chance for the accumulation of lint in the usual oil hole to absorb so much of the oil that little is left for the bearing. In seeking a method to avoid these defects Waypoyset determined upon the "Alemite-Zerk" system.



With the pressure system the warper needs lubricating only once every two months

The Alemite lubricant used is 89% oil and is what might be called a solidified oil—the object being to retain the lubricating qualities of oil in so far as possible. The lubricant is contained in a barrel fitted with a pump by means of which lubricant can be forced into a filler tank that the operative carries around. From this tank, which has a capacity of 20 lb., lubricant is transferred without loss into a pressure gun which is applied to the fittings.

In applying a pressure system to the usual textile machinery it is obviously impractical to ream out each of the oil holes and to thread for a screw fitting. Consequently, a drive fitting has been devised. The oil hole is measured, and a plug of the proper size, with corrugations of soft metal, is driven in. The soft metal corrugations flow around the hole in such a manner that a tight, and vibration-proof, fit is made. Into the plug is driven either a straight or angle tip which fits the pressure gun. As the pressure used forces the lubricant into the bearing surface, it is not necessary to have grooved bearings.

Waypoyset, primarily a fancy silk-goods mill, has gone on the idea that any point subjected to real wear should be fitted for the pressure system wherever feasible. In accordance with this policy all important bearings on silk twisters, Universal winders, and spoolers have been equipped for pressure lubrication. Likewise, slashers which have enclosed bearings, rather than half bearings, have been fitted at all points of wear. On the Sipp winders the three main bearings at each end of the frame have been equipped, as well as of the three center half-bearings.

The warpers show perhaps the greatest savings of all. With the pressure system it is necessary to lubricate only every two months. As the speed of the warpers is increased, proper lubrication becomes of even greater importance. Even the treadle bearings have been fitted on many of the warpers.

On the looms the two end bearings and center bearing of the lower crankshaft have been equipped, the same being true of the upper crankshaft. In addition, fittings are on the gear drive, the clutch, the pick shafts, the rocker arms, the lay swords, and in some cases the crank arms. Points of wear on the Gem heads have been equipped. In lubricating the lifter motion of jacquard heads it has been found that solidified oil prevents possibility of damage through dripping of the lubricant. Incidentally, it has been discovered also that coating the face of the cam with solidified oil every two weeks will obviate damage due to throwing.

With the pressure system, when the mill is running 24 hr. per day, it is necessary to lubricate loom parts only once every two weeks. A loom can be greased just about as fast as it can be oiled, the actual time being about 200 looms in 7 to 8 hours.

In addition to the obvious saving in labor—because of the longer intervals—there is a large reduction in the amount of lubricant needed, since there is no wastage of the solidified oil.

Experience at Waypoyset has demonstrated also that maintenance charges have been reduced, due partly to the longer intervals between necessary lubrications, and partly to the definite manner in which a pressure system will cover all the bearing surface and thus minimize the chance of a bearing running hot through neglect or insufficient lubrication.

THE PERSONAL PAGE

HORATIO HATHAWAY was elected president of the Wamsutta Mills, New Bedford, succeeding the late WILLIAM R. WEST. JAMES E. STANTON, JR., was elected to the board of directors. Mr. Hathaway has been a director of the corporation for over 30 years.

GEORGE RUTLEDGE, president of the Vassar Swiss Underwear Co., was elected president of Munsingwear, Inc., and its subsidiary, the Munsingwear Corp., to succeed F. M. STOWELL, who died June 5. CHARLES L. PILLSBURY, treasurer, was elected first vice-president as well.

G. A. EFROYMSON, formerly a member of the firm of Efroymson & Wolf, Indianapolis, Ind., will succeed PORTER M. FARRELL as president and general manager of the Real Silk Hosiery Mills, Inc.

GEORGE A. SLOAN, president of the Cotton-Textile Institute, in addressing the Birmingham (Ala.) Kiwanis Club recently, sounded a challenge to the men of the South to wear cotton clothing "without the need of resolutions and pledges, but because this industry is so vital to you and your section."

THOMAS A. BOWLES has been elected president and L. R. NASH, secretary and treasurer, of the Alabama Hosiery Mills, Decatur, Ala.

E. W. BRUPBACHER has resigned as president of the Brupbacher Silk Mills, Ltd., Valleyfield, Que.

WILLIAM S. DOWDELL of Weil Bros., has been elected president of the New York Cotton Exchange and also president of the Wool Associates of the New York Cotton Exchange.

GEORGE W. SUMMERSBY, treasurer of the Boston Mfg. Co., Waltham, Mass., prior to the liquidation of that company, has been elected vice-president and assistant treasurer of the Spencer Corp., Spindale, N. C.

ALBERT GEE, a director of the Hancock Knitting Mills, Philadelphia, has been elected vice-president and general manager, succeeding W. PARK MOORE, who announced his resignation on June 9 after many years activity in the hosiery field.

ROBERT L. BAGG, treasurer and a director of the Holyoke (Mass.) Silk Hosiery Co., has been named vice-president and sales manager in addition and will have offices in New York.

R. FORBES AULD, formerly sales manager of the R. Forbes Co., Hespeler, Ont., has been appointed vice-president and manager of the C. Turnbull Co., Galt, Ont. Mr. Murphy, the former manager, has been appointed a director of the Turnbull company.

ERNEST ROHR, in charge of throwing for the Duplan Silk Corp. since 1928, has been promoted to general plant executive in charge of all Duplan mill operations following the retirement of EMIL BUHLER, senior vice-president.

George W. Summersby now with Spencer Corp.

J. LEWIS SCHRUM has been elected secretary-treasurer, Catawba Cotton Mills, Newton, N. C., to fill the vacancy caused by the death of J. W. YOUNG last winter. The mills, closed two years, have reopened.

L. COOK has been elected secretary and treasurer of Bossong Hosiery Mills, Asheboro, N. C.

FRANK E. FITZPATRICK has resigned as Washington representative of the National Wool Marketing Corp. and the National Wool Growers Association. Mr. Fitzpatrick contributed valuable services in the promotion of National Wool Week. Lieut.-Col. HARRY B. EMBACH, former secretary, Arizona Wool Growers Association, has been elected general manager of the National Wool Marketing Corp.

JACK BLOOM, sales manager R. & H. Simon Corp. has been appointed general sales manager and stylist for Bloomsburg Silk Mill, as part of sales expansion program, succeeding JACQUES WEBER, who continues as vice-president and general manager of New York organization. Change announced June 9 by Mr. Weber.

K. G. GREENING has been appointed general manager of the Houston (Texas) Textile Mills. A. J. BRANSCOM has succeeded W. A. MITCHELL, resigned, as treasurer.

J. J. MOWRY, formerly assistant manager of Hartsville (S. C.) Print & Dye Works, has been promoted to resident manager, succeeding S. L. HAYES, resigned.

IRVING LEWIN, formerly of Lang & Lewin, who recently joined the organization of the Duplan Silk Corp., has been made manager of the company's Hazelton, Pa., plant.

RALPH CRAMER, sales manager of the Cramer & King unit of Associated Dyeing & Printing Co., Paterson, N. J., has resigned.

W. M. KIRKLAND has been appointed superintendent of the new full-fashioned hosiery plant of the Charles H. Bacon Co., Loudon, Tenn.

HENRY F. HORN has been named superintendent of the newly organized Lincoln Textile Co., Boston, Mass. The company will manufacture heavy draperies and upholstery.

J. A. WOOTEN, formerly with the Manetta Mills, Lando, S. C., has been appointed superintendent of the Industrial Cotton Mills Co., Rock Hill, S. C.

FRED SCARBOROUGH is now superintendent of the Walter Fred Hosiery Mills, Inc., Nashville, Tenn.

FRANK G. YANEY has been appointed superintendent of the full-fashioned department of Cooper, Wells & Co., Decatur, Ala.

D. L. WALL is now superintendent of Bemis Brothers Bag Co., Bemiston, Ala.

J. I. MCCANN has become superintendent of the Miller-Smith Hosiery Mills, Chattanooga, Tenn., succeeding C. U. Smith, elected vice-president.

HERBERT P. SONTAG is now plant engineer of the Firth Carpet Co., Auburn, N. Y. He has previously been engaged in development work for the Mohawk Carpet Mills.

J. A. MCFALLS has resigned as superintendent of Ranlo (N. C.) Mfg. Co.

W. C. CHANDLER has succeeded Mr. Sullivan as overseer of weaving at the Gaffney (S. C.) Mfg. Co.

Obituary

JOSEPH A. BOLGER, SR., representative of Howard Bros. Mfg. Co., Worcester, Mass., for 30 years until his retirement, died June 5, at the age of 73. He had been identified with textile industry for 60 years. First with James Lees & Sons Co., Bridgeport, Pa., he later served as overseer of carding in various mills. He then joined James Barker, Inc. He was president of Bolger Bros., waste manufacturers, and associated with the General Textile Machinery Co. His sons will continue his businesses.

HOWARD A. MCCOY, for many years Philadelphia representative of John F. Street & Co., Providence, R. I., died June 3, at his home, Ventnor, N. J. He was 54 years old; associated with John F. Street & Co. for over 30 years.

WILLIAM R. WEST, president of Wamsutta Mills, New Bedford, died May 31 in that city at the age of 74. He was prominent in textile, banking and civic affairs of New Bedford.

THOMAS ALEXANDER WRIGHT, formerly superintendent and general manager of Bolton (Texas) Yarn Mills, died at the age of 53. Funeral was held in Charlotte, N. C.

HISTORICAL COINS

(No. 5 of a Series)

THE West Indian Islands, not having a coinage of their own, used foreign coins, which they cut up in different manners. During the latter part of the 18th Century, Dominica, for instance, cut a hole in the Spanish dollars, the outside being valued at "16 Bits"—the plug at "two Bits".

On St. Lucia they cut the Spanish dollars in three pieces with two parallel cuts, the center passing for "nine Bits", the sides at "4½ Bits."

DURENE yarns

natural bleached
colored and mercerized

A

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CONSTRUCTION AND USE OF

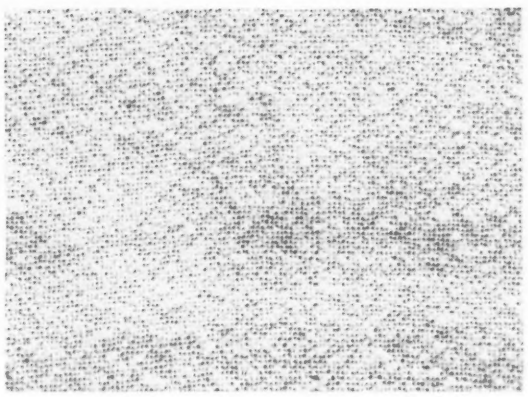
New Apparel Fabrics

NOVELTY and attractiveness of style have been most effective allies of textile salesmen during recent months of buyer apathy. Fabrics which produce new effects or give a new kind of service have scored successes for their makers. Initiative and foresight on the part of stylers, coupled with willingness on the part of chief executives to branch out into the unusual, have proved profitable attributes.

In this special section, readers will find a representative group of apparel textiles each of which is an achievement in its field. Often the novelty lies not in the invention of something new, but in the application of standard constructions to new uses. In other cases the adaptation requires some small change which observers find interesting and suggestive of further developments in this or allied fields.

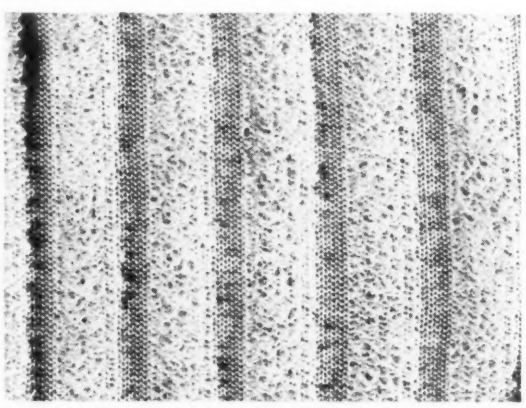
On the two pages immediately following are shown pictures of up-to-the-minute textiles in their designated uses—dresses, bathing suits, hats, etc. On this page and on the third page following will be found several of the fabrics illustrated in true size and analyzed as to construction and yarn content.

This is the first of a series of articles featuring illustrations of materials, devices, accessories, etc., of interest to textile manufacturers.



Synthetic-Fiber Bouclé

Set 42 in. in reed to finish 39 in.
Reed: 18, two ends in a dent single.
Warp. Sley 36 in the loom, three-end 100-denier Bemberg = an 8,820-yd. number or a 10½/1 cotton size
Filling: 36 picks of three-end 100-denier Bemberg = an 8,820-yd. number or a 10½/1 cotton size.
Weave: Plain.



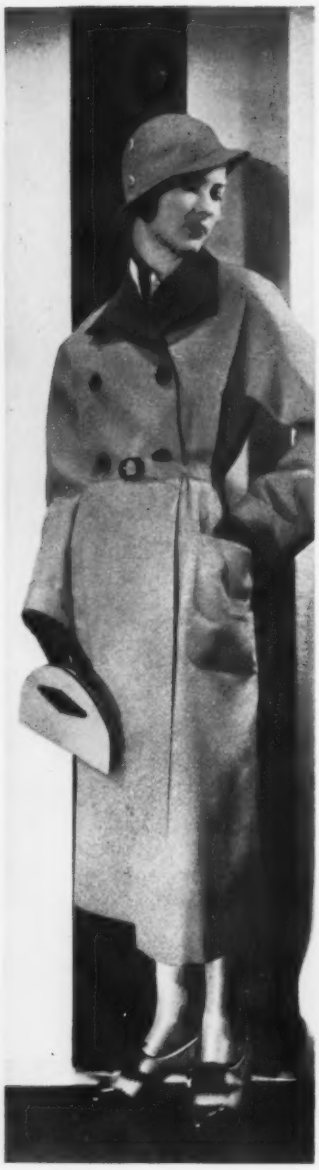
Bathing-Suit Terry

Filling knit, plain ground with terry stripes, 6.76 oz. per square yard, 2.36 sq.yd. per pound, 19 wales per inch, 36 courses per inch, .035 in. thick, 60/2 Durene ground, 60/2 Durene pile, 16 needles per inch.

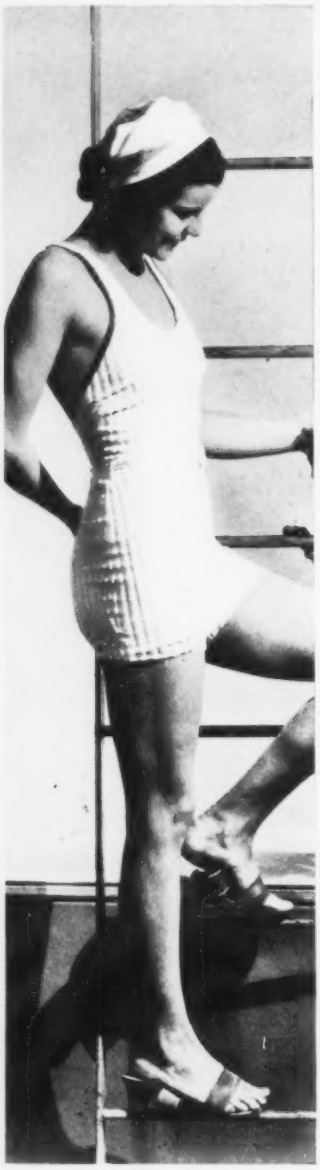
Angel Skin

Warp knit, milanese stitch, 3.51 oz. per square yard, 4.56 sq.yd. per pound, 49 wales per inch, 44 courses per inch, .013 in. thick, 65-denier Chardonize, 28 needles per inch.

New sports mode, exemplified in bouclé of Bemberg yarn, made by Bordow Silk Co. (see page 89)



Durene's versatile Ribcord, mercerized cotton, in country coat by Blackstone-Stallman. (see page 92)



A 1932 novelty is rib-knit all-Durene cotton bathing-suit, Asbury Mills. (see page 89)

Smart tailored sport dress of duPont Acele Briella fabric; stripes on white ground.

Chic silk millinery; Adam & Eve crepe, by D. I. & C. H. Stern; hat by H. D. Bellin, Inc.

Conservatively colored fine worsted, a new shirting for men's wear; line developed by the Botany Worsted Mills

Grecian effect artistically exploited by Thos. D. Mackay Co. in Durene-Devore beach shoes

APPAREL WHICH ARE TEXTILE

Fabrics used in several are illustrated and ana

Dress of satin corduroy fabric, StehliSilks Corp., showing novelty broadsilk trend. (see page 92)

Popular cotton sports hat of Devore yarn in Durene-covered Lastex; Serge Hat Co.

Suspender-back skeletonized swimsuit permits more exposure to sun; Munsingwear Corp.

Medici transparent velvet wrap made in the new winter, 1932, length; fabric by Cheney Bros.

Lace-trimmed slip of knitted Angel Skin using Chardonize yarn; Tubize Chatillon. (see page 89)

NOVELTIES BROADENING MARKETS

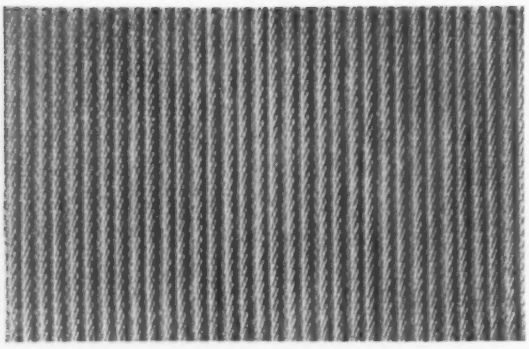
of the above garments
ly'd on pages 89, 92

Zipper device facilitates removal of upper half of new Jantzen bathing-suit for men.

Gloves, handbags, scarves are accessory uses of "Port Hole" mesh, made by Clark Bros. from Bemberg yarn. (see page 92)

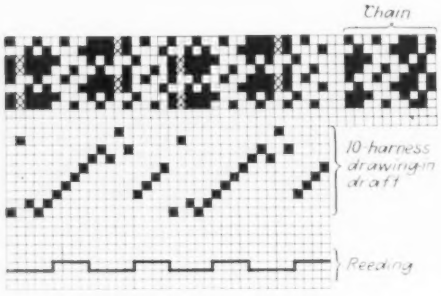
NEW APPAREL FABRICS

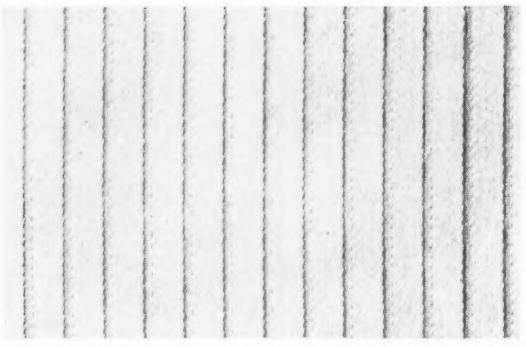
(continued)



Rib Cord

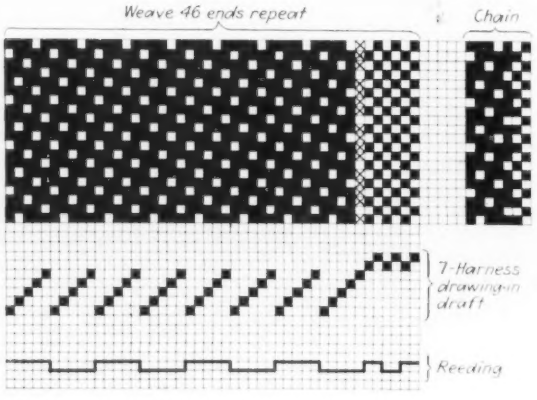
Set 42-in. in reed to finish 39 in.
Reed: 24, four ends in dent and five ends in dent alternating—two-beam job
Warp: Sley 108 in loom of 30/2 warp-twist Durene yarn.
Filling: 64 picks of 30/2 Durene yarn.
Weave: 2 repeats × 2 repeats; crosses indicate second beam of stuffer thread

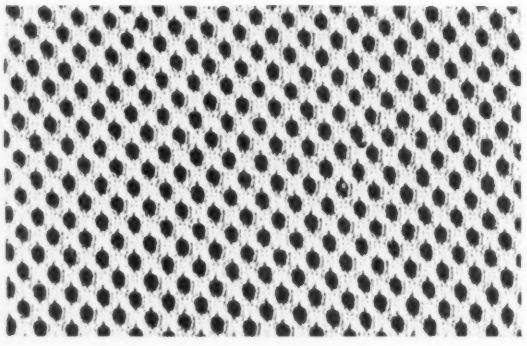




Satin Corduroy

Set 43 in. in reed to finish 39 in.
Reed: 40 used
{ 5 single ends per dent for 8 dents-40 ends }
{ 2 single ends per dent for 3 dents-6 ends }
× 4 repeats per inch = 184 ends per inch.
Warp: 184 ends per inch in loom, 60/2 spun silk.
Filling: 96 picks of 13/15 five-thread 60/65 turns Japan crepe, two right and two left
Weave: Five-shaft satin stripe and plain-weave stripe.



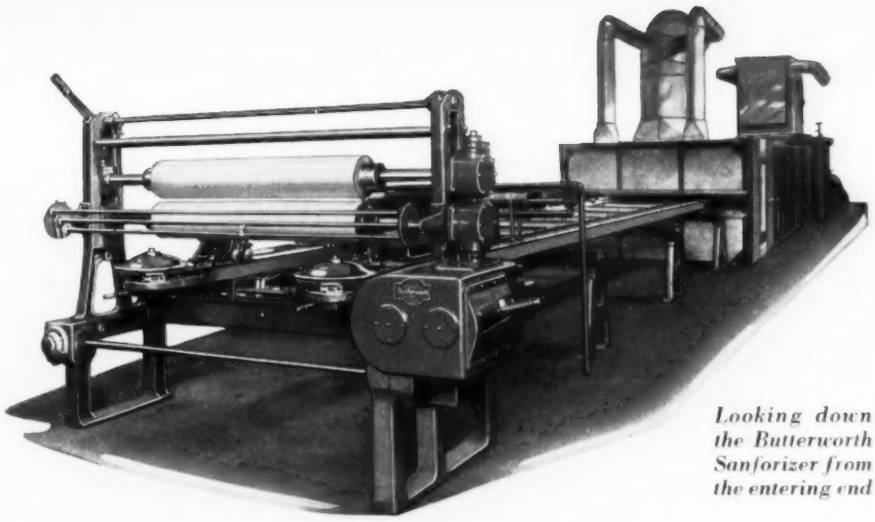


Port Hole Mesh

Warp knit, tricot net (two bar), 3.72 oz. per square yard, 4.30 sq.yd. per pound, 37 wales per inch, 45 courses per inch, .015 in. thick, 100-denier Bemberg, 28 needles per inch.

Chains for Two-Bar Tricot

0	12
2	10
6	6
4	8
0	12
2	10
6	6
4	8
12	0
10	2
6	6
8	4
12	0
10	2
6	6
8	4



Looking down the Butterworth Sanforizer from the entering end

Yardage of Sanforized fabrics increased 158% in the first three months of 1932*

Fabrics made for the following should be Sanforized . . . .

Cotton Wash Goods
Linens
Domestics
Petticoats and Slips
Negligees
Infants' Wear
Women's Coats and Suits
Women's Dresses
Blouses and Skirts
Junior Misses' Coats and Suits
Junior Misses' Dresses
Girls' Wear
Sports Wear
Aprons and House Dresses
Maids and Nurses' Uniforms
Men's Furnishings
Boys' Wear
Draperies
Curtains
Upholstery

This tremendous increase shows the acceptance of Sanforized fabrics by the public. Here is something for executives of finishing plants to consider

The public wants goods that will not shrink!

THIS acceptance will continue to grow and finishing plants which are *not* equipped with Sanforizing machines will feel the loss of business, which will go to concerns who have been far-seeing enough to install them.

We already have proof of this fact in the number of Sanforizing machines which we have built—Union Bleachery, Greenville, S. C., having just placed an order for a third machine, while plants that have installed one Butterworth Sanforizer are showing an interest in additional machines.

Our organization has been licensed by Cluett, Peabody & Co., Inc., to build Sanforizing ranges. These are made complete under one roof, there is no divided responsibility.

Complete literature will be sent promptly, and Butterworth Engineers will be glad to discuss with you Sanforizing in connection with your products.

* *Increase as compared to first three months 1931.*

H. W. BUTTERWORTH & SONS COMPANY, *Established 1820*
PHILADELPHIA, PA.
PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office:
TURKS HEAD BUILDING
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Southern Office:
JOHNSTON BUILDING
Charlotte, N. C.

In Canada:
W. J. WESTAWAY CO.
Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF RAYON AND FINISHING MACHINERY FOR THE TEXTILE INDUSTRY

The Quality Element in STANDARD-COOSA-THATCHER

durene

is Fixed

THE traditional quality of Standard-Coosa-Thatcher durene is maintained in every step of the process of converting high grade raw cotton into fine knitting and weaving yarns by the single control method in our own mills. There is always the same accuracy of count . . . the same evenness of thread . . . the same careful preparation of the finished package. . . . Plan your new numbers with Standard-Coosa-Thatcher durene. National leaders choose its uniform quality for their new as well as their regular numbers.

Samples on request . . . natural, bleached or colors.

STANDARD-COOSA-THATCHER CO.

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Canadian Representatives: Wm. B. Stewart & Sons, Ltd., Toronto . . . Montreal

LETTERS TO THE EDITOR

How Durable Are Textiles?

VIENNA, AUSTRIA.

Editor, TEXTILE WORLD:

Since sending you the article on the durability of textiles [published in the May 14th issue of TEXTILE WORLD], we have received a rayon dress which on our abrasion machine shows a durability in excess of any rayon fabric hitherto examined. Although this is merely a single example, it suffices to prove that the attainment of high durability in rayon material is possible; and therefore it would probably be well to correct our article to read as follows:

"To conclude our comparison of the various textile fibers, using wool as our basis, we find that rayon is 1/12, silk is ½, wool is 1, linen is 1.9, and cotton is 4.3. The absolute durability of the best fabric, plain weave and weighing 100 grams per square meter, worn 16 hours daily by middle class men, is 25 days for rayon, 50 days for silk, 300 days for wool, 560 days for linen, and 1,300 days for cotton."

ADOLF ROSENZWEIG,
Vienna, Austria.

A Boost for George Stevens

LA PORTE, IND.

Editor, TEXTILE WORLD.

Dear Sir:

The writer gets a great deal of satisfaction in reading the articles written by your George R. Stevens.

There is no doubt in my mind that this man is a practical manufacturer. His last article written on bright colors and rough

weaves, building up from his raw stocks, blends and yarns to the finished fabric, was in my mind one of the best I have ever read.

I hope to see more of these articles in the near future.

M. O. MURPHY,
Supt. of Yarns, La Porte Woolen Mills.

Fills Better Need as Monthly

PHOENIXVILLE, PA.

Editor, TEXTILE WORLD:

I want to congratulate you on the decision that was reached by TEXTILE WORLD to make it a monthly instead of a weekly. Some time ago when Mr. Urquhart of *Factory and Industrial Management* was in my office I spoke to him in reference to the same matter. I at that time thought that the TEXTILE WORLD would fill a better need for the industry as a monthly instead of a weekly.

M. G. BERG,
Superintendent, Ajax Hosiery Mills.

"With a Monthly It Will Be Different"

UTICA, N. Y.

Editor, TEXTILE WORLD:

I think you are very wise in making TEXTILE WORLD a monthly. I look upon the TEXTILE WORLD as containing the reasoned opinion of the textile industry and consider its editorials of extraordinary value. I am glad it is becoming a monthly because I felt a sense of loss when I was unable to read it every week. I would set it aside to read more carefully, but as often happens in these strenuous times I would not get to it. With a monthly it will be different.

ROY A. CHENEY,
Secretary, Associated Knit Underwear Manufacturers of America.

He Likes the Idea, Too

NEW YORK, N. Y.

Editor, TEXTILE WORLD:

Your new set up for TEXTILE WORLD sounds interesting. It is peculiarly in line with the thought that I have had about your magazine. I should think there is a place in the textile world for a magazine that will properly cover the six main branches. This is particularly true now due to the fact that raw silk is so cheap that there is every indication of it being used in conjunction with cotton and rayon, both by the weaver and the knitter.

I would like very much to see the first issue in its new form and of course wish you abundant success.

DEAN HILL,
Executive Secretary, Throwsters Research Institute.

—AND FROM THE EDITOR

Readers, TEXTILE WORLD:

This is the first issue of the new monthly. How do you like it?

Having become quite intimately acquainted with it during the last few weeks, we feel we may be able to offer you a few suggestions by means of which you may possibly get the most out of your copy each month.

First, we imagine you will want to thumb the pages from cover to cover and get a general idea of the subjects covered. Then you will probably want to go back and read carefully those articles which happened to attract your attention most forcibly.

Too often, the reading of a magazine stops at this stage—and some of the "meat" is lost. In planning for the monthly, we have tried to provide a means whereby you may be sure not to miss anything that you have paid for.

Consequently, as a third step, we suggest that you turn to the Contents Page (the right-hand page preceding the first page of reading). You will note on that page a series of headings: Management, Methods, Merchandising, Mill Engineering, Men, Materials. If you are a general executive, you will be particularly interested in the "Management" articles; operating executives will find the "Methods" articles most directly useful. Similarly, the "Merchandising" articles will appeal particularly to sales executives; "Mill Engineering" articles to plant engineers, master mechanics, etc.; "Men" articles to all primarily concerned with problems of employer-employee relations; "Material" articles to purchasing agents, chemists, etc. Consequently, you may want to check the list of articles under the heading or headings most interesting to you, to make sure you did not miss any.

Again, on the Contents Page is a listing of "Industry Branches," referring to the Cotton Digest, Wool Digest, Silk Digest, Knit Goods Digest, and Processing Digest. In each of these "Digest" sections, will be found: (1) trend news and developments in the specific branch of the industry covered; (2) editorial comment on the outstanding problem affecting that branch; and (3) a cross-reference index of all articles in the issue bearing on the particular branch. Thus, this affords further assurance that you will not miss any material of special interest to you.

In providing for the coverage, *in each issue*, of the interest of all types of men engaged in the textile industry, and of all branches of that industry, we hope that the new monthly TEXTILE WORLD will perform the type of service for you that you need most. We should very much appreciate hearing from you and getting your comments—pro or con. Especially shall we appreciate any suggestions you may make regarding further improvement.

DOUGLAS G. WOOLF,
Editor, TEXTILE WORLD.

Subscription Price Reduced

THE change in frequency of publication of TEXTILE WORLD is accompanied by a reduction in the annual cost to the reader. The domestic subscription price has been reduced from $4.00 to $3.00 a year.

All present subscribers will of course receive the benefit of this reduction by having their subscriptions extended in the ratio of the above change in rates; that is, the unexpired portion of each subscription from June 1 has been extended by one-third.

For example, if a subscription expires Nov. 30, thus having six months still to run at the old rate, the expiration date has been extended by two months, to Jan. 31, 1933. All such credits have been automatically adjusted on the records of the publishing office.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced during previous issues. The subjects which were opened in April 30 and May 7 issues are closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "The Overseer and Costs" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers' R

THE OVERSEER AND

"I MET a man the other day," said Superintendent Chase as the overseers settled down for the meeting, "who was much surprised that I allowed you men to know so much about costs. Naturally, I began to wonder whether or not I was making a mistake. What do you think about it?"

"I am afraid," Bill replied, "that everyone is human to the extent that he likes to show off his knowledge. I can see many good reasons why a mill does not want a competing mill to know its costs, and I can see an overseer spilling the beans by feeling all puffed up with importance at some time and telling some outsider how much he knows about costs. No man likes to have his wife going around telling how much money he makes, and no mill wants its overseers talking about costs to outsiders. It might be all right if we all could keep as still as an oyster, but, as I said, we might as well admit that we are human and liable to loose talking. Therefore, I think the best plan is to have the overseer know as little about costs as possible. Let the super jump on the overseer and tell him when costs are too high, or pat him on the back when they are low, but that is all. The real overseer keeps his costs as low as he can, and it doesn't do him any good to know what costs the mill figures."

"In the first place," Pete broke in, "Bill has the old idea that cost figures are a great secret that it would do a competitor a lot of good to find out. Personally, I think there has been too

The Mill's Fire-Fighters

Editor, Overseers' Round-Table:

EVERY MILL should have an efficient fire-fighting force. This force when properly trained can respond quickly and will, in most cases, be in time to put the fire out or prevent it from making any headway until the regular fire department arrives. All fires cost a company money even if insurance is carried. Pete has made the mistake of separating the interest of the worker from that of the company. As a matter of fact, they are, and should be, identical.

The squad should drill on company time. This permits the sounding of alarms for drills at unexpected times. All drills should be held as nearly as possible under the same conditions as exist when a fire occurs. This would not be possible if the drills were held outside of company time.

One company I know of not only has the drills on company time but further pays an additional 50c. to each member of the squad present at a drill. This company has a highly efficient fire-fighting squad which has amply demonstrated the wisdom of the management in the method of handling this problem.

Pete claims drilling on company time would interrupt the work. In organizing such a squad one man should be picked from each department throughout the mill. One man out of a department would not interrupt the working of that department to any great extent and you will always have one man of the force near the fire regardless where it might be.

L. E. CHRISTNER.

Editor, Overseers' Round-Table:

EVERY LARGE concern should have a number of picked men who live near the mill trained for fire fighting, with the engineer or mechanic, who knows where all the water valves are situated, as head.

Have practice of about two hours duration once or twice each month after working hours. Pay the men at a decent rate; payment to be made every six months. During the winter, practice would consist of examining hose, fire extinguishers, etc., and getting the run of the mill. In summer, pick teams—the number on each side depending on the size of the mill—and have these teams run out hose lines and connect up just as they would do in case of a fire. Time each team. This system will make the men efficient and they will enjoy the competition. Should these men ever be required, you will find them capable of dealing with any emergency.

HARRY RUSHTON.

Editor, Overseers' Tound-Table:

SURELY NO one can give a sound, logical argument against a plant fire-fighting force, made up of various employees. It would be good insurance against property damage and loss of life in the event of fire.

A 10 or 15 minute fire drill the first Monday in each month, with all employees participating, would do much toward educating each employee how to leave the plant quickly and safely during a fire, so that the fire-fighting force could precede the local engine company. Many times the fire-fighting force can have the flames mastered before they can get a head-way. In this way many lives and thousands of dollars can be saved.

Since it would be a mutual service during a fire, the force should be trained on the company's time, during working hours, with the regular pay-rate prevailing. If all plants would get "fire prevention conscious" there is a good chance that the insurance rate would be materially reduced. A plant fire-fighting force is economical regardless of its cost of training. T. F.

Talking Politics in the Mill

Editor, Overseers' Round-Table:

I BELIEVE superintendents, overseers and other officials should keep their political beliefs and opinions outside the mill gates. Time spent in the mill should be devoted to the job in hand and not to chasing political "will o' the wisps."

I quote an amusing example of business meddling in politics from a local campaign staged hereabouts recently: This mill was supposedly to get the thick end of the club from the opposition. The chief and his satellites were most anxious that the opposition be crushed and so put forth extraordinary efforts to round up the sheep and goats. Time off was allowed with no expense to the workers and transportation was furnished at their convenience on polling day. Alas, there seemed more goats

Round-Table

COSTS

much to-do about guarding costs, but we'll pass that over. The point is that if you want to get the fullest cooperation possible from your overseers in the matter of keeping costs down you must be frank with them. You'll get a lot more from an overseer if you show him from the figures how much he has gone over the cost that mill figured than you will by just a lecture on the subject of expenses being too high. Further, if the overseer is shown just what the company's position is with regard to relation between costs and selling price he is going to take a real, personal interest and will work his head off. I don't believe in keeping an overseer in the dark, because then the overseer knows that he is not entirely trusted and he works accordingly. I would rather take a chance on someone blabbing than have overseers feel that they weren't a real part of mill management. In some cases it may not be advisable to have the overseers know costs in other departments, but each overseer should at least have full details about direct labor, indirect labor, supplies and overhead in his particular department."

▸ **Do *you* believe that overseers should be given full information about costs?**

SUMMARIES

POLITICAL ACTIVITY: *That it is unwise for superintendent or overseers to attempt to influence workers along political lines was the opinion of 57% of the contributors. Another 28% believed that facts on different candidates should be brought out by the mill management through outside means, such as notices in the paper, bulletins, etc., but not by direct advice. The remaining 15% believed that superintendent and overseers should tell workers about the candidates.*

SAFETY WORK: *Vote was practically unanimous that the best way to prevent accidents was through educational work, rather than by strict rules, breaking of which means dismissal. Safety-first committees in each department were highly recommended, as well as posters, educational talks, etc.*

▼

than sheep and the ballots squelched the champion of industry, which shows that you can feed all the political boloney you like to the worker, but he will still exercise that God-given right to think and vote as he pleases. "BILL BOWYANKEE."

Editor, Overseers' Round-Table:

I HAD given the subject some serious thought years before I was made superintendent of a local concern. At first it struck me forcibly that it would be proper to stay completely out of politics. But when I became better acquainted with conditions in the plant, and saw the crying need for a lowering of taxes, with other much-needed legislation—all of which was especially interesting to each individual—I changed my mind.

It was near the November election. Several different candidates sought a certain office. The candidates flocked to the plant, each "singing his song," some having a perfectly fair story which looked fantastic to the "man up the tree." At length I learned through business heads of other concerns, and through the general public, that there was one candidate who could really be depended upon. If elected he would fill a long-felt want.

I talked the matter over with our men, and at length called a meeting for the purpose of discussing the question. All took a deep interest in the movement, attended the meeting, talked over the situation, and agreed to support the certain candidate. This was done, and a more deserving man—a man who filled the bill completely—was never elected to any office. So everybody was proud and congratulated me—the superintendent—for getting the men together on the subject.

All in all, I see no reason why superintendents and heads cannot encourage local political activity among their men.

WILLIAM B. WEBB.

Editor, Overseers' Round-Table:

THE QUESTION of political activity on the part of heads of industry is certainly open to argument. It may be agreed that all of us should take a vital interest in community, state and national issues, as we are all affected and should also be concerned with the effect on others. Let us give the various issues mature and deliberate thought, so that we may discuss them intelligently when the occasion arises. But when it comes to the point of an overseer—or anyone else for that matter—attempting to tell the average man how he should vote, you might just as well try to get him to change his religion.

It seems to me that our immediate responsibility is to our employers and stockholders. It was written long ago that "no man can serve two masters."

OLD TIMER.

Safety Work

Editor, Overseers' Round Table:

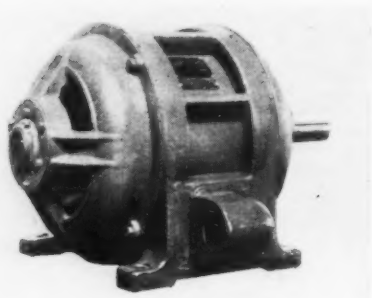
WHEN Supt. Chase said that no one likes to have accidents, he merely expressed just what thousands of men in his position feel and, no doubt, he hopes that accidents in industry can, and will be, diminished.

Education is the basis for all efficiency, whether it be by text books, posters, talks or demonstrations, and every employer of labor should first become imbued with a sincere desire to cooperate between the operating and executive departments. Education in safety should start with the employer. If he himself is an ardent student and a firm believer in safety this feeling is bound to redound to the credit of his organization.

A committee of overseers meeting monthly to discuss problems, diagnose accidents, present recommendations and report on periodic inspections of their own or of other departments, is a very important cog in the safety machinery of any plant. When possible, a representative of the insurance carrier should be present at these meetings, to advise and instruct the members of the committee as to rules and regulations.

Occasionally, it may be found necessary to discharge a recalcitrant because of a stubborn disregard of the very things which are being done for his welfare, but to hold the threat of dismissal as a whip to drive operatives to a realization of safety is not good practice. GEM.

NEW MACHINERY & PROCESSES



Screenless Open Motor

A NEW screenless, open motor, designed for use where atmosphere is laden with lint, has been announced by General Electric Co. No attempt has been made to exclude lint, but provision has been made to blow out immediately lint which enters motor. This is made possible through following construction: smooth glossy windings to which lint will not adhere; no pockets in or about windings; large frame and shield openings to allow easy passage of lint; dust and oil-tight bearing housings which eliminate lint catching spots of oil or grease.

It is claimed that manufacturing costs are reduced, the use of screens with attendant care eliminated, and use of totally enclosed motors, with higher initial costs, limited. Cost of new motor comparable with standard, open-type motor.

New Type Fade-Ometer

NEW and improved Fade-Ometer has been brought out by Atlas Electric Devices Co., Chicago. Refinements include: aluminum shell enclosing specimens, which are placed in metal holders suspended from a ring surrounding the violet carbon-arc light, to preclude possibility of specimens overheating by contact of holders with other metal; water reservoir with series of wire frames covered with wicking through which air is driven by fan, producing relative humidity of 52-60%; fan controlled by DeKhotinsky Thermo Regulator to maintain temperature of 98-105° F.; rotary main line switch and adjusting switches to control arc; circuit breaker to trip if current rises above 20 amp. and remains for 15 min.

Type FDA Fade-Ometer is made in one size, capacity 42 specimens.

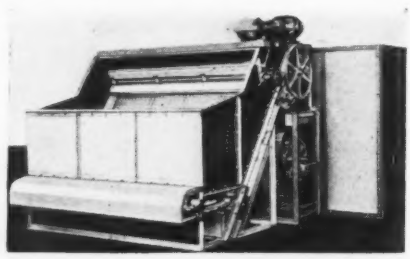
Improved Printweight

USES of Toledo Printweight have been extended through three new improvements; the selective numbering device, the delayed time switch and the application of the photo-electric tube or "electric eye," according to the Toledo Scale Co.

The selective numbering device provides a system of identification which has practically limitless applications, such as dating, batch numbering, grading and numbering by lot, by operators or by employee group numbers. Operator can punch the numbers or letters he desires and these will then be reproduced on the printed weight ticket.

The delayed time switch delays the printing of the weight until the indicator has stopped oscillating and is intended for use with conveyor systems.

The "electric eye" makes the printing operation automatic if desired. Objects moving across the scale platform on a conveyor section may have their weight printed when they intercept a beam of light just before they leave the scale.



New "Hurricane" Raw Stock Dryer

DESIGN of new "Hurricane" raw stock dryer, placed on market by Philadelphia Drying Machine Co., is said to offer advantages of compact machine with increased drying capacity and lower operating costs.

Only one motor is used to drive both blowers and conveyor, but there are no belts on machine or moving parts, with exception of automatic feed and its drive. Conveyor is made in sections of perforated steel plates, each held by steel bar supported by heavy roller chains, and possesses special stock-retaining feature consisting of traveling integral guard rail. Automatic feed and conveyor equipped with Reeves variable-speed drives.

Blowers are located at sides and are of double-suction type, drawing air inward from both sides. All line-shaft bearings of blowers are located outside heat zone in insulated and cooled sleeves. Heating coils, located in air chamber above conveyor to conserve floor space, are of "pipe-within-a-pipe" type and are staggered.

In operation, air delivered by blower passes over heating coils, downward through wet stock, and returns through blowers and heating coils for re-circulation—a proper amount of air being exhausted when it becomes saturated. This method is said to enable a given amount of air to evaporate a large amount of moisture and reduce steam consumption.

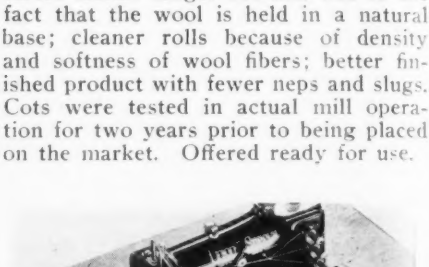
Steam-Operated Controller

THE steam-operated temperature and pressure controller manufactured by C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., uses the pressure of steam to operate a diaphragm valve. As the differential in pressure on either side of the diaphragm actuates the valve, variations in pressure do not affect accuracy. A feature is compact control head which houses the control port.

Flow of steam out of the control port actuates the valve because of the difference in pressure on different sides of the diaphragm, the control port in turn being actuated by a thermostatic bellows which is part of the usual thermostatic system which includes a bulb and connecting tube.

Clearapelt Cots

THE A. C. Lawrence Leather Co., Peabody, Mass., has placed "Clearapelt Cots" on the market. These cots are made from a sheep pelt with the wool cropped closely. The manufacturers claim: longer cot life, due to the fact that the wool is held in a natural base; cleaner rolls because of density and softness of wool fibers; better finished product with fewer neps and slugs. Cots were tested in actual mill operation for two years prior to being placed on the market. Offered ready for use.



Isolated Installation for Sewing Machines

UNION Special Machine Co., Chicago, has developed a new type mounting for its new sewing machines. The feature of this mounting is the fact that the machines are not bolted or fastened to the tables, simply resting on insulating pads or bushings which set in the table boards.

The "Isolated Installation" is being furnished for Fifty-Thousand Series machines, such as sleevers, in connection with the "semi-submerged" type of installation. The machine tests on insulators contained in a sub-base attached to, and really a part of, the table top, bringing the working surface of the machine approximately 2¼ in. above the table top. This type of installation, with positive gravity feed lubrication system is said to eliminate oil stains on garments.

The "I. I." is regularly furnished also with new over-edgers in the Thirty-Nine-Thousand series and with hosiery seamers in Class 41200.

Electric Temperature Signal

TEMPERATURE signal device for determining temperature by means of electric lights, and known as the "Thermo-Tel," has been developed by the Uehling Instrument Co., Paterson, N. J. The instrument consists of differently colored electric lights, actuated

NEW MACHINERY & PROCESSES

by changes in temperature. When the temperature is within the limits for which the instrument is set, a white light will illuminate; when the temperature is above the limits, a red light will illuminate; and when the temperature is below the limits, all lights will be out. Signals are said to be accurate to within less than 0.1°F.

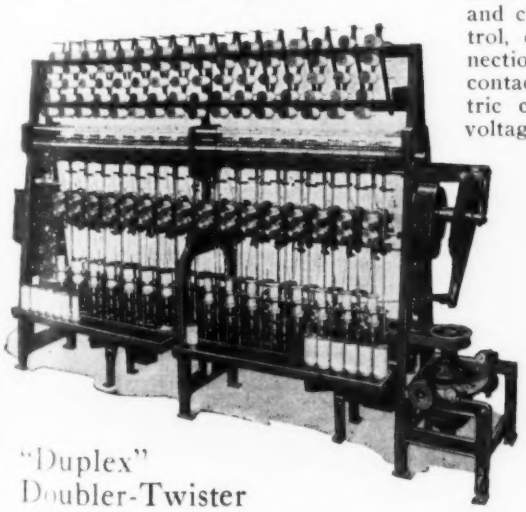
Water Meter

WORTHINGTON Pump & Machinery Corp., Harrison, N. J., has added another model, known as GA, to its line of water meters. Great accuracy is claimed for extremely low flows, as well as for intermediate and high flows. Built in sizes ¾ to 2 in., with normal flow from 1 to 160 g.p.m.

Features include: all register gears fitted with rubber-bushed bearings; train assembly consisting of four cast bronze gears and four pinions, all fastened to Monel metal spindles revolving in replaceable hard-rubber bushings; disk chamber held together by snap joint to allow separation without distortion in case of freezing; cast-iron bottom, of nominal cost, breaks with hard freeze to prevent damage to meter; stuffing box cast on main plate.

Tachometer

AMTHOR Testing Instrument Co., Brooklyn, N. Y., has put out a new direct reading tachometer, the feature of which is that the pointer does not drop back to zero when taken away from the machine, but stays fixed on the dial. This is said to eliminate errors and to make the instrument particularly suitable for use in poor light.

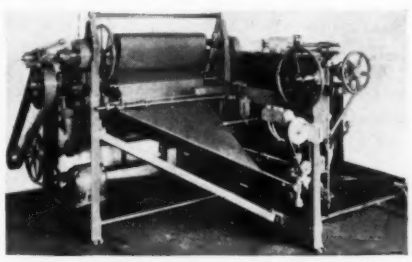


"Duplex" Doubler-Twister

A NEW doubler-twister has been produced by the Fletcher Works, Philadelphia, capable of operating at a spindle speed of 10,000 r.p.m. on 7-thread hosiery tram, 20 turns. A similar doubling of production is claimed on other counts and uniformity of twist is said to be marked. Features of the new "Duplex" are: "Oilwell" spindles; large, double-feed rolls; patented sliding motor drive; and swing rings that are individually adjustable.

Surface Thermostat

A SURFACE thermostat, designed to be clamped to the external surface of tank, pipe, or other metal container in which it is desired to control the temperature, has been announced by Barber-Colman Co., Rockford, Ill. It may be applied without any holes being drilled and it is only necessary that the copper disk at the base be placed in contact with the surface of the container. Standard instrument can be adjusted between 100° and 200° F. and has differential of 10-12° F., but may be made with other ranges and differential. Designed for use in connection with other instruments which make up three-wire, low-voltage system of temperature control.



Cloth Rolling and Doubling Machine

AN AUTOMATIC cloth rolling and doubling machine for rolling all kinds of material into packages has been announced by J. E. Windle Machine Works, North Grafton, Mass.

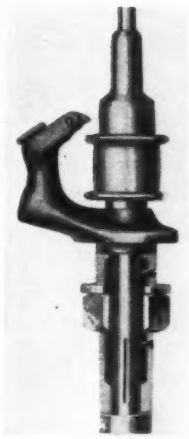
Features include: requires no levers to operate, starting and stopping by magnetic control in connection with motor and clutch; dual automatic selvage control, operating on low voltage in connection with non-arcing multiple contacts, eliminates human eye; electric current supplied from any power voltage of 3 phase a.c. current through transformers which are part of machine, no extra equipment being required; several extra low-voltage outlets provided for additional automatic features when needed; gaging from one width of cloth to another made by quick and easy adjustment, with any width handled.

Advantages claimed are quicker operation, better laid selvages than through manual operation and easier operation. Made in six models for all kinds of cloth.

High Throw Overedge Machine

AN OVEREDGING machine has been developed by Union Special Machine Co., Chicago, to overedge Chenille rugs, felt pads and similar articles. Machine is designed to produce a secure and durable edge finish on thick and loosely constructed materials. Machine operates at high speed and is designated as Style 39300Z.

Spindle Base



A SPINDLE base said to increase the oil reservoir capacity as much as 100% has been placed on the market by Saco-Lowell Shops, Boston. Base takes their standard spindle blades and standard Mullin loose-locked step bolster. Made in two styles: No. 2 designed for application to existing frames, and No. 2a, of slightly larger capacity, to be applied after spindle rails have been bored to larger diameter. Less frequent oilings, improved circulation and lower power consumption are claimed.

General Equipment

ALSO of interest to the textile field are the following improvements in general industrial equipment:

Lead-Coated Steel Drum. Gross Engineering Corp., Cleveland. Lead-coated steel drum of 10 gal. capacity for shipping, storing and handling acids. Outer shell of welded sheet steel. Has renewable outlet.

Safety Ventilating Fan. L. J. Wing Mfg. Co., New York. Improved Wing-Scruplex safety ventilating fan. Screw propeller design. Safety guard of welded steel construction, welded to fan frame.

Steel Flooring. H. H. Robertson Co., Pittsburgh. Novel floor slab fabricated by preforming two steel sheets and then welding together in plane above neutral axis. Cross-section shows four keystone shaped cells which can be utilized for wiring.

Pressure Governor. Northern Equipment Co., Erie, Pa. New "Copes" Type SDS-2 Governor for controlling any excess pressure from 15 to 150 lb. Can be installed on simplex or duplex pumps, on turbine- or motor-driven centrifugal pumps, and for constant-pressure service up to 150 lb.

Manual Starters. Square D Co., Milwaukee. Two speed separate winding type and single speed reversing type added to line of a.c. manual starters. Two speed type particularly suitable for heating and ventilating purposes. Maximum horsepower ratings of the three pole starters are 5 hp. at 220 volts and 7½ hp. at 440-550 volts.

Electrode Holder Stand. Lincoln Electric Co., Cleveland. New electrode holder stand which automatically shuts down welder 1 min. after holder is placed on stand and instantly starts welder when holder is removed. It is claimed that the automatic start and stop feature effects power savings.

Inverted Bucket Steam Trap. Fisher Governor Co., Marshalltown, Iowa. Inverted bucket steam trap, featuring adjustable valve post and positively guided inner valve.

QUESTIONS AND ANSWERS

Oiling Cotton Spindles

Technical Editor:

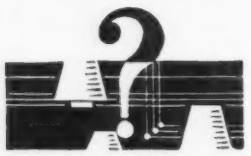
We are hoping that you can give us some helpful advice regarding the oiling of our spinning spindles. We find that the operation of the frames is not satisfactory immediately after oiling and are wondering whether there is any way we can avoid this difficulty. We get more ends down. Should appreciate your recommending a suitable type of oil and advising us how often spindles should be oiled. (7894)

The oiling of spindles is an operation which is strongly affected by many local conditions. It is difficult to generalize regarding it, except in the broader aspects. As a rule, in mills running medium and coarse counts, with heavy or medium spindles running at from 6,500 to 8,000 r.p.m., the spindles are oiled at least once every two weeks. This amount of oiling would be more than ample if there were no doubt that each and every spindle receives its proper quota of oil. However, there is a very great possibility that the oilers may pass up a frame here and there, or several spindles on a frame; therefore, as a matter of insurance, some mills even go so far as to oil their spindles once a week. On the lighter spindles the oiling can be done every three weeks with safety, provided the oil is suitable and the work properly supervised.

The development of the proper procedure is really a study for each mill, because the variables entering into the matter are so numerous.

First, the spindle itself must be considered. In the designing of the spindle, there were certain clearances and fits which were decided upon as being satisfactory. It was intended by the spindle maker that the circulation of the oil should take place in a certain manner, determined by the location of the oil-circulating holes and slots, the arrangements made for the return of the oil to the reservoir, the height of the oil in the base with reference to the running gear of the spindle, and the design of the spindle bolster in general. All these details were adjusted with a certain degree of precision by the maker. They were placed in a certain relation to each other and to the weight of the spindle and its load at operating speed. The various clearances were designed for an oil with a certain definite range of viscosity.

Therefore, if any local condition has a tendency to destroy the carefully planned operating conditions, trouble will occur. For instance, if there is a heavy accumulation of dirty lint, dust, and gummy oil in the bottom of the spindle base, several things happen. First, the oil capacity of the base, already rather small, is reduced. Second, the accumulation of foreign matter and the thick black oil will plug the oil holes in the bottom of the bolster, either stopping the circulation or greatly interfering with it. Third, the accumulation of foreign matter in the space between the inside wall of the base and the outside wall of the bolster will interfere with the ability of the spindle to seek its true axis of rotation while under load at its operating speed.



There is no reason why you should have trouble with your spindles if they were made by a reputable manufacturer and kept in good shape. It is therefore recommended that, first of all, a frame of spindles be examined carefully. If there is an accumulation of foreign matter, the bases and bolsters should be emptied by an oil suction pump and then swabbed out until clean. In the meantime check up the wear in the base and bolster, with special reference to the fit of the upper bearing of the spindle in the bolster. It would be well to have samples of high-grade spindle oil, with viscosities ranging from an 80 second oil to a 40 second oil. Any of the oil companies will be glad to furnish these samples.

We suggest that four different oils be tried on this frame, one-fourth of the spindles being oiled with each grade of oil. In a month or two, if the proper records have been kept, it will be very easy to determine which oil reduces vibration, eliminates rough running, and gives less ends down. It will also be well to make some observations to determine the proper oil level in the base. If the spindles are tape driven, you should look into the matter of tape tensions. Frequently, a slight adjustment in the tension of the tape will go a long way in correcting spinning troubles.

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Carding Rayon-Cotton Mixtures

Technical Editor:

Could you give me any information on carding mixtures of cotton and rayon on cotton cards? We are contemplating taking on some of this work. (7882)

Not knowing what counts of yarn you desire to spin or the percentage of rayon you intend to mix with cotton, or whether or not you desire smooth, even, or rough yarns (novelty), the following must be more or less a general answer:

When using a cotton card and manufacturing medium counts of yarn on cotton processes, a staple rayon is desirable; that is, the rayon should be cut to the approximate length of the cotton staple.

The amount of rayon that can be mixed with cotton to produce an even yarn will depend largely on the rayon filaments themselves. That is to say, the secret of carding rayon or rayon mixes on a cotton card lies in the fineness of the filaments of the rayon. Some mills are running 100% rayon on cotton cards, but it is a fine-filament rayon or a rayon having filaments which readily separate from one another. When coarse rayons are used, uneven yarns are produced; and the amount of rayon in the mix will have to be considerably less.

Providing that a tape condenser is used on the card for the manufacture of coarse counts, and providing also that the stock from the card is to be used on a waste mule or Pease type of spinning frame, the rayon can be uneven in length.

In the Sept. 27, 1930, issue of TEXTILE WORLD was published an article by Charles A. Weston on "Rayon Waste in the Cotton Mill," which may be of some value to you.

▼

Holding Shrinkage on Rayon-Cotton Batiste

Technical Editor:

We are enclosing herewith a small swatch of yarn-dyed, figured batiste woven with a 150-denier natural rayon warp and a 40/2 combed-peeler filling. Will you kindly give us full particulars as to what method of processing is necessary to obtain the maximum warpwise shrinkage in this class of goods?

At the present time, after these goods are woven, we give them four ends on a jig in a hot-water-and-soap solution at about 135° F. They are then run through a dryer, calendered, and given a cotton-back finish. After the jigging and drying operations, we find that we get a shrinkage of approximately 10%; but after calendering and finishing, we lose the shrinkage. (7884)

Your preliminary treatment of the goods before finishing appears to be correct, as you are obtaining the desired shrinkage. While the method of drying is not stated, we assume that these goods are can-and-frame dried after extracting to remove excess water. If this is true, some of the shrinkage will be lost during the drying operation. The remainder will disappear in the subsequent sizing process.

In order to retain the shrinkage obtained by jigging, wet finishing may be carried out in a quetsch in conjunction with a net or loop dryer. The finishing material is applied in the quetsch; and drying takes place with no tension, either between the quetsch and dryer or in the dryer itself. After framing the goods over steam jets to remove wrinkles, they are then ready for calendering, which should be carried out with as little tension as possible.

It is possible also that one of the special preshrinking processes, which are employed extensively for finishing cotton shirtings, dress goods, and other fabrics, could be employed on this class of material; and we suggest, therefore, that you investigate this possibility.

▼

Clogging of Latch Needles

Technical Editor:

We are enclosing herewith six 54-gauge latch needles. If you will examine the latches you will find that they do not open so widely as they should. A further examination will reveal that there is a certain amount of lint or gum behind the latch of the needle. We should like to have you advise us what you think is the cause of this

QUESTIONS AND ANSWERS

and should appreciate your suggesting a remedy. (7878)

The needles submitted are of excellent quality. The gum in the needle slots is quite hard and appears to have been formed by the drying or thickening of a heavy oil, to which the lint has adhered. The substance in the needle slots is mainly lint, from which most of the oil has been driven by the whipping of the latches.

Since you have trouble with few needles, we recommend taking the needles with high-standing latches out of the machines and cleaning the slots with the stem of a needle ground to a short thin blade.

It would be unusual to use such a heavy oil or enough oil to cause such a gum to form and collect. We note that the butts of these needles are also coated with a like substance and suspect a heavy oil may have been used in the needle cylinder slots or to lubricate the sinkers. When too much oil is used on the needle cylinders, it will work up with the needles in the cylinder slots. Excellent results have been obtained by spraying the needles sparingly below the sinker ring with a good stainless oil once a day.

▼

Preventing Kinks in Cap Spinning

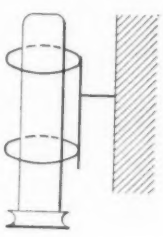
Technical Editor:

In your issue of Feb. 6, 1932, page 129, the statement is made that means have been devised to overcome the formation of kinks in worsted spinning. Will you kindly advise us in detail just how this is done, as we are very much interested? (7895)

Your inquiry has been submitted to L. M. Harless, the author of the article, who replies as follows:

"Cap-yarn snarls are produced when the machine is stopped for any purpose, such as at meal time; and there is a case in England where cap frames are run 168 hours per week, just as they run machines making rayon, in order to avoid such snarls.

"The yarn, when the frame is running, is ballooning around and over the cap. In slowing down, the centrifugal force, which causes the ballooning, is removed and a length of yarn is liberated to form a snarl. If the frame could be stopped in such a manner that its momentum could be transferred, snarls would be scarce. Or if, in starting up a frame, the spindles could begin a fraction sooner than the yarn is delivered, again the fault would be obviated. One firm has constructed a frame with a clutch acting upon the cylinder shaft, so that, with the turning of the stop rod, a brake is applied and long snarls are prevented.



"Many spinners keep down snarls by methods which are effective, but crude. Lifter rails are wound down to the bottom by turning the pulley wheel at the frame end. If the frame has been stopped with the lifter in that position, no advantage can be gained and the snarls must remain.

"When spinning on spools, this method of winding down the lifter plate is fairly effective. The smaller diameter of the spool nose increases the drag on the yarn and pulls out the developing snarl. However, there are some spinners who, to prevent this fault, do not start frames after doffing if a further stopping period, such as a meal time, is near.

"Another device I have seen (see accompanying diagram) employs a couple of rings having a diameter about 1 in. larger than that of the cap. These are suspended around the cap by means of a wire attached to the cap tin board. Cap tins are done away with. The yarn passes from the spool or bobbin up inside of the ring, and a large balloon is prevented. To give sufficient drag, the speed of the spindles is increased; and for fine counts it may be 9,000 r.p.m. The piecing-up is rather difficult with these rings in position, but the operatives quickly become used to it."

▼

Cause of Broken Full-Fashioned Sinkers

Technical Editor:

Our various machines are breaking sinkers. The peculiar thing is that the sinkers break at exactly the same point and in exactly the same way. We enclose a pair of sinkers which are broken off so evenly that you would think they had been cut out by a die.

Before writing you this letter for advice we took the following steps to eliminate the condition, but apparently without any result, for we are continuing to have the trouble: (1) We recut the folding bar. (2) We cleaned out the jack heads and oiled them. (3) We oiled the slur-cock bar (4) We attended to getting proper play between sinkers and folding bar. (5) We renewed the catch-bar cams and catch-bar rollers. Kindly let us know what else we might do to remedy this condition. (7893)

The samples submitted clearly indicate that the sinkers were broken by becoming crystallized through undue shock when driven against the folding bar. Your procedure in recutting the folding bar is the correct method of eliminating the trouble. The point in question, however, is whether or not the folding bar has been cut at the correct angle for receiving the butt of the sinker without shock and whether it has been cut sufficiently to produce enough cushion to minimize the shock.

We advise a careful check-up on the recut folding bars for correct angle and thickness; and if indications are that the job has been correctly done, then with the proper adjustment between sinkers and folding bar, which you seem to understand thoroughly, the trouble should disappear after a reasonable length of time. You have probably overlooked the fact that a number of the sinkers may have been crystallized almost to a breaking point before you corrected the folding bar and adjustment of the machine. Naturally, there will follow for some time a further breaking of sinkers, but this trouble should gradually peter out.

We believe that your adjustments other than recutting the folding bar and adjusting the sinkers were entirely foreign to the trouble; but, at the same time, there are no objections to the careful follow-up of such adjustments. We advise oiling sinkers at least once a week with a good high-grade, knitting-machine oil to be applied with a small paint brush.

▼

Picking Rayon Clips

Technical Editor:

We are using rayon clips at our rag pickers and have been obliged to pick them in a dry condition. Can you suggest anything we can put on the clips before picking that will not in any way cause fire? We are getting a large shrinkage which we should like to cut down. (7890)

Picking rayon clips or threads in a dry condition is sure to cause fires; and it not only decreases the staple, but increases the shrinkage. Oiling the rayon reduces the fire hazard greatly. If your present emulsion gives good results in both the carding and wet finishing, spray it on the rayon so as to impregnate the clips thoroughly and evenly. It is best to use thinner layers, spraying each layer and allowing time for the oil to work its way thoroughly into the fibers. If the stock nibs in carding, and the card is properly set, cut down the amount of emulsion to the point where the stock fails to nib, but not enough to start making too much fly and waste.

▼

Streakiness in Shantung Warp

Technical Editor:

We are enclosing a sample of material on which we should like to have you give an opinion as to the tendency for streakiness in the warp. This is a piece of shantung made with eight-cocoon Tussah, thrown 2x2, 8/6 turns, filled with 60/80 Japan Douppioni, 76 picks. (7891)

We have carefully examined the sample of shantung; and it is our opinion that inferior warp stock is largely responsible for the streaky condition.

We also find that there must have been some neglect in the finishing, causing slippage of the warp ends. This shifting is often encountered when the proper temperature is not maintained in stretching.

In manufacturing shantungs of this type and construction, considerable attention should be paid to the warp stock and care should be taken not to mix different lots. Another point is to make sure that reed dents do not shift.

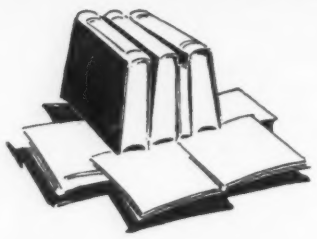
NEW PUBLICATIONS

MECHANICAL FABRICS: A TREATISE UPON THEIR MANUFACTURE, CONSTRUCTION, TESTING AND SPECIFICATION; By George B. Haven, New York; John Wiley & Sons, Inc.; $10.00; 905 pages.

Professor Haven's chief aim in this book is to help to clarify the methods of research as applied to industrial uses for textiles. "There is no reason," he writes in his preface, "why mechanical fabrics should not be subjected to just as rigid tests as other constructive materials such as iron, steel, cement and timber." His volume is so complete as to be virtually an encyclopedia of data on the desirable characteristics, manipulation, and testing of textiles used for industrial purposes. He describes with microscopic minuteness the types of yarns, fabrics, laboratory equipment and practice, specifications and tolerances, and indeed every major question which would be of importance to a textile manufacturer who now sells, or aims to sell, his product in the industrial market.

FUTURE TRADING UPON ORGANIZED COMMODITY MARKETS IN THE UNITED STATES; By G. Wright Hoffman, Philadelphia; University of Pennsylvania Press; $5.00; 482 pages.

The present high variability of exchange trading prices lends particular significance and timeliness to Professor Hoffman's minute analysis. Textile traders and manufacturers will find much of interest and value in the volume, especially in the fifth chapter, which is devoted to cotton marketing in all its aspects, including production and consumption, classification, local marketing and central markets. The evolution of future trading, with particular reference to cotton, is considered in the third chapter. Knowledge of trading fundamentals is more valuable to the cotton industry today than ever before and



Prof. Hoffman's thoughtful review of the subject well merits the careful study of textile men whose business may bear directly or indirectly on the cotton market.

COLLOID CHEMISTRY—THEORETICAL AND APPLIED; Vol. III and IV; Compiled and edited by Jerome Alexander; The Chemical Catalog Co., Inc., New York.

Included in this compilation of papers on technical applications of colloid chemistry are several chapters relating to the textile industry and others allied to it. Of particular interest to the textile chemist are sections on the theory and process of dyeing, sizing and finishing operations, and reactions of silk in aqueous solutions of neutral salts. Other chapters having a direct bearing on textile operations are those dealing with the colloid chemistry of cellulose and starches, wetting of solids by liquids, colloid mills, and colloid chemistry of rubber latex.

Business Literature

Air Circuit Breakers. Roller-Smith Co., 233 Broadway, New York. Air circuit breakers, open and enclosed; attachments of all kinds; relays and sectional-steel, dead-front switchboards and cubicles.

Arc Welding Supplies. Lincoln Electric Co., Cleveland, Ohio. Includes new Manganweld, Aluminweld, and Hardweld electrodes.

Ball Bearing. Auburn Ball Bearing Co., Rochester, N. Y. Information arranged as a convenient reference manual for designers and engineers requiring thrust bearings.

Boilers. Foster Wheeler Corp., 165 Broadway, New York. Different types of boilers and how they are applied to complete steam generating units.

Boiler Plant Modernization. Combustion Engineering Corp., 200 Madison Ave., New York. Revamping of several boiler plants and figures on operating costs before and after.

Chemicals. The Roessler & Hasslacher Chemical Co., Inc., Empire State Building, New York. Quarterly price list of all R. & H. chemical products. Uses of some not commonly employed.

Compressors, Single Stage Centrifugal. General Electric Co., Schenectady, N. Y. Specifications and operating characteristics.

De-ion Circuit Breakers. Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. Two circulars. General description, breaker ratings, applications.

Emulsions, Preparation of. Carbide & Carbon Chemical Corp., 30 East 42d St., New York. How to prepare emulsions and other products with triethanolamine.

Engines, Compressors, Pumps. Worthington Pump & Machinery Corp., Harrison, N. J. Several bulletins. Stationary Diesel engines ranging from 50 to 1,000 hp. Gas engines of the vertical, 4-cycle type. Portable air compressors. Monobloc-type, centrifugal pumps.

Finishing Products. Laurel Soap Mfg. Co., Philadelphia, Pa. Soaps, scouring and fulling compounds, sulphonated oils, penetrants, special oils and softeners, and finishing compounds.

Formic Acid. Victor Chemical Works, Chicago, Ill. Functions in textile dyeing.

Gaseous and Liquid Fuels. Combustion Engineering Corp., 200 Madison Ave., New York. Tangential firing of gaseous and liquid fuels, corner firing of blast-furnace gas, and combination burning of blast-furnace gas and pulverized fuel.

Hosiery Dyeing, Handbook of. E. F. Houghton & Co., Philadelphia, Pa. Use of Houghton products in the preparing, coloring, and finishing hosiery.

Motor Control. Square D. Co., Milwaukee, Wis., in the initial issue of *Industrial News*, illustrates and describes a variety of industrial controllers.

BUSINESS NEWS

Barber-Colman Installations

Spoolers and warpers at Clifton (S. C.) Mfg. Co., Mill No. 3, are being replaced by the latest type Barber-Colman equipment. Mills Nos. 1 and 2 have been operating Barber-Colman spoolers and warpers for some time. Lancaster (S. C.) Cotton Mills have installed a Barber-Colman automatic spooler and super-speed warper in the No. 1 Mill. Installation of six spoolers and four warpers of this type has recently been completed in the No. 2 Mill.

New Fisher Agents

Fisher Governor Co., Marshalltown, Iowa, has appointed two new exclusive representatives: Grinnell Co. of Minneapolis, Minn., and the Steam Plant Equipment Co., Milwaukee, Wis.

Warren Brice Joins Swann

Warren Brice, Charlotte, N. C., has accepted a position with the Swann Chemical Co., which recently opened district offices in Charlotte. He will cover the textile industry.

F. H. Martin Joins Belger Co.

Fay H. Martin, formerly general manager of Woonsocket Machine & Press Co., and the inventor of the Martin cone for even tension on roving frames, has become associated with Belger Co., Watertown, Mass. His invention is being sold by the Belger Co.

Joins Burkart-Schier

W. A. Pardue, Mount Holly, N. C., has joined Burkart-Schier Chemical Co. as salesman and technical representative in North Carolina and Viginia. Mr. Pardue was formerly connected with the Beaver Chemical Works and American Yarn & Processing Co.

Dardelet System Loom Bolts

The Pawtucket (R. I.) Mfg. Co. has been licensed by the Dardelet Threadlock Corp. to manufacture and sell bolts and nuts with the Dardelet self-locking thread. The Pawtucket company makes loom bolts.

E. T. Fowler Retires After 32 Years

Edward T. Fowler will retire July 1 as treasurer and manager of the Foster Machine Co., Westfield, Mass., builders of yarn winding machines. He has been with the concern for 32 years. He will continue to hold membership on the board of directors.

Mathematical Consulting Service

D. S. Davis, formerly staff mathematician for the Mead Corp., is offering a consulting service in industrial mathematics. Dale S. Davis' Associates, East Northfield, Mass., are specializing in preparation of nomographic charts for the textile and paper industries.

INDUSTRY-WIDE EVENTS

Getting Early Jump on Greenville Show Plans

PLANS for the Southern Textile Exposition, to be held in Textile Hall, Greenville, Oct. 17 to 22, are rapidly being crystallized. Particular attention is being devoted to the matter of attendance, with the purpose of securing the presence of as many mill representatives as possible; 83,500 tickets have been printed, a large number of which will be delivered by direct mail to mill personnel and exhibitors.

Program for the week thus far arranged includes: Monday evening, Oct. 17, informal reception to exhibitors and their guests in ballroom of Poinsett Hotel. Wednesday, Oct. 19, meeting of textile division of A.S.M.E., including business meeting in morning, visit to local plant in afternoon, and dinner in evening. Wednesday, Oct. 19, in evening, ball at Poinsett Hotel given by Junior Charities of Greenville. Friday, Oct. 21, fall convention of Southern Textile Association, including business meeting, luncheon, and informal dance in evening.

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Quality League to Act as "Starter"

THE function of the National Quality Maintenance League in the drive to restore emphasis upon quality merchandise, has become clarified. Briefly, it is understood that the League has no present intention to seek a large "campaign fund" or to start an advertising drive. On the contrary, the League feels that the need for quality emphasis has become so evident that all that is necessary is to start the various groups moving by themselves. This would indicate that the League would act more as a co-ordinating organization. Certainly, the response to the movement has reflected widespread endorsement, and editors of consumer publications are expected to be active in promoting the idea.

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Quality Demonstrated

SINCE quality of merchandise is entirely relative, the plan developed by R. H. Macy & Co., New York, to demonstrate quality ranges, is of particular interest. In the silk piece goods department, the various tables have been arranged so as to produce what might be termed a step-ladder effect, with merchandise displayed in the order of the price scale. Thus, a customer can compare the quality offered in a 39c. silk, for example, with that in a 49c. silk. It is understood that the average price for silk goods sold after this arrangement went into effect was considerably higher than it had been before.

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Textile Schools Again Produce Vital Crop

TEXTILE schools of the country have again produced one of the most important crops of the industry.

At Philadelphia Textile School commencement, June 2, 17 students received diplomas for full three-year course and 11 for two-year course, with a large number of awards of certificates for students completing partial courses in day and evening classes. Usual alumni activities were held, including annual outing.

Lowell Textile Institute graduated 29 students June 7. Address by Prof. Geo. B. Haven, of M.I.T., was one of the features of the exercises.

Textile School of North Carolina State College graduating exercises were held June 5 to 7; 27 students received B.S. degree, and three received M.S. At annual meeting of alumni June 6, S. B. Alexander, president of the association, presided.

A. French Textile School, Georgia School of Technology, graduated one of largest classes in its history; 27 received degree of B.S. and eight were awarded certificates in the two-year course in textile engineering.

At graduation exercises of New Bedford Textile School, June 3, diplomas were presented to 18 members of the day class; 14 other students in special courses received certificates.

Bradford-Durfee Textile School held commencement May 27. W. N. Fenninger, supervisor of technical education, New York State Department of Education, was principal speaker.

Clemson College commencement was held May 31. Twenty-four students were graduated from the Textile Department of whom eight were in textile engineering, 13 in textile chemistry, one in weaving and designing, and two in textile industrial education.

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Invites Textile Men to Annual Meeting

AMERICAN Society for Testing Materials has extended an invitation to textile manufacturers and others interested in the industry to attend the textile session of the annual meeting scheduled for Tuesday afternoon, June 21, at Chalfonte-Haddon Hall, Atlantic City. This is the first time in several years that an entire session of the annual meeting has been devoted exclusively to textiles. Excellent papers have been scheduled for presentation. Committee D-13 will hold its meeting in the morning of the same day.

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Proposes Textile Labor Conference

GOVERNOR WINANT of New Hampshire has taken the initiative in inviting governors of the principal textile manufacturing States, both North and South, to join with him in asking the U. S. Department of Commerce to convene a national conference for the purpose of discussing ways and means of stabilizing employment. In his letter of invitation Governor Winant states that severe competition is resulting in wage cuts that tend to place wages below a living scale.

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Going to Leipzig?

FREE trips to the Leipzig Trade Fair to be held Aug. 28-Sept. 1, are again offered to American buyers. By this unique plan, the expense of the round-trip will be refunded at Leipzig as heretofore on the basis of orders placed at the Fair. Approximately 8,000 exhibits will be shown this fall, and 125,000 buyers and exhibitors are expected.

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National Safety Council

EXECUTIVE committee of Textile Section, National Safety Council, meeting recently, learned that membership has fallen only 7% in the last year. Plans are underway for the "world's greatest safety gathering," the 23rd Annual Safety Congress and Exhibition, Washington, on Oct. 3 to 7, 1932.

Textile Calendar

American Society for Testing Materials, annual meeting, Atlantic City, N. J., June 20 to 24, 1932.

Southern Textile Association 24th annual meeting, Hendersonville, N. C., June 24 and 25, 1932.

Philadelphia Textile Manufacturers Association, sixth annual outing, Manufacturers Country Club, Oreland, Pa., June 25, 1932.

Piedmont Section, American Association of Textile Chemists & Colorists, summer meeting, Charlotte, N. C., July 16, 1932.

Southern Textile Exposition Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

Southern Textile Association, regular fall meeting, Greenville, S. C., Oct. 21, 1932.

National Association of Cotton Manufacturers, Boston, Oct. 26 and 27, 1932.

TEXTILE WORLD'S

Cotton Digest

THE cotton textile industry has its teeth set. It is determined to balance its production with demand. Announcements by many mills of complete shut-downs for the current month are evidence of this fact.

This may seem like bitter medicine at a time when unemployment is a national problem, but failure to take such steps would bring far worse suffering later.

This thought was effectively dramatized by J. P. Stevens & Co., Inc., in a recent public statement: "Mills should close *now* when operatives in common with mill managements can meet the situation with a minimum of hardship. Shutdowns next winter would mean maximum hardship."

A little thought and a little planning, right now, may help to prevent widespread disaster next winter.—*Editor.*

Record Curtailment In Cotton Goods

DRASTIC curtailment in all divisions of the cotton manufacturing industry, including complete plant shutdowns for the entire month of June by more than 30 southern print cloth and sheeting mills, reached the greatest proportions of any recent movement to regulate production in line with demand. It is estimated that approximately 1,500,000 cotton spindles were closed down about June 1 for a period of four weeks or longer. Mills reported closed indefinitely are the York Mfg. Co., Saco, Maine; Pepperell Mfg. Co., Opelika, Ala.; Charles Mills Co., Red Springs, N. C., and the Goodyear Mills, Inc., Goodyear, Conn.

Closed for the month of June, and possibly for a longer period in some cases, were the groups of mills identified with J. P. Stevens & Co., Deering, Milliken & Co., and the Consolidated Selling Co., Inc. The Royal Mill of B. B. & R. Knight Corp., at West Warwick, R. I., also is closed during June. The elimination of night shifts, the three-day week, and every-other-week operation were curtailment methods adopted by many other mills. Several mills identified with the Hunter Mfg. & Commission Co., as previously mentioned in the trade, have been closed for a month or longer.

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Cotton Spinning Activity

OF the 31,945,750 cotton spinning spindles in place in the United States Apr. 30, 1932, there were operated during the month of April 23,409,246, compared with 24,818,008 for March, and 26,668,536 for April, 1931. The average number of spindles operated during April represented 70.7% of capacity on a single-shift basis comparing with 90.1 for March and with 94.1 for April, 1931. Cotton consumption for May totaled 332,439 bales against 367,280 for April.

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Cotton Week a Success

REPORTS from representative merchants throughout the country indicated another success this year in the observance of National Cotton Week.

George A. Sloan, president of the Cotton-Textile Institute, has pointed out as of special significance the sustained confidence in cottons on the part of retailers as revealed in plans for continuing aggressive promotions throughout June and in many cases up to the end of July.

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Ernest Lovering Dies

ERNEST LOVERING, prominent New England textile executive, died recently at his home in Brookline, Mass., in his 73d year. A native of Cambridge, Mass., he graduated from Harvard University with the class of 1881. For two years after leaving college, he was associated with the Pepperell Mfg. Co., at Biddeford, Me. Later he went to Holyoke, Mass., where he was appointed superintendent and agent of the Lyman Mills. In 1907 he was elected treasurer of the Dwight Mfg. Co. and a few years later was appointed treasurer of the Lyman Mills. He remained as treasurer of the latter company until February, 1928. He had not been actively engaged in the textile industry since that time but continued to serve as a director of the New England Trust Co., Boston, and as treasurer of the Boston Y. M. C. A.

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Will Raise Prices If Demand Does Not Gain

THE Aberfoyle Mfg. Co. has announced that prices on its Durene yarn will be advanced July 15 if demand does not increase. This decision has been prompted by the belief that such action is necessary to protect the living standards of the company's employees and to restore confidence in the market. The announcement follows in part:

"After a careful study of the situation in which the textile trade in general, and the Durene trade in particular, now finds itself due to business conditions in this country and abroad, we are of the opinion that we must establish a definite policy to offset the present shrinkage of demand for textile fibers and fabrics. At this time not only is yarn sold below the present cost of production of the lowest cost mills on a normal operating schedule but the losses sustained immeasurably increase by the curtailment that goes on in production as the depression drags along.

"It is easily seen that in the main the burden of these distressing times falls upon industry's employees. Every textile manufacturing concern in this country has looked to economy as never before; wages in many quarters have been lowered to a point where those who are employed find their meager incomes ineffectual in their efforts to live under halfway satisfactory conditions; other items of the price of production have been cut to an irreducible minimum; and still the price war goes on with disastrous results to the companies so engaged, to the employees in particular, and to the community at large.

"The Aberfoyle Mfg. Co. has, of course, maintained a large force of operatives in view of the size of its normal business for the purpose of manufacturing under proper working conditions, to produce the quality required at a satisfactory price, and to make the deliveries of the many counts at the time wanted. We have been continuous employers of American labor and skilled operatives for over 50 years, and we realize at this time more than ever our duty to our many loyal employees and the absolute necessity of continuing to employ as many people as we possibly can as many hours a week as our production costs and selling prices permit. We see no advantage in the scurry for orders in a market where demand is lessening weekly. Such procedure resulting in price cutting secures no additional poundage and forces further wage reductions and other measures not justified.

"We have found that most of the knitters and the buyers of the products of the knitting mills, such as chain stores, jobbers, etc., have expressed themselves as deploring the continued decline in prices and in many instances they have honestly

wished for a substantial advance in the prices of the basic commodities that they use, such as Durene yarns, silk and rayon.

"In view of the foregoing we wish to advise our many customers who have cooperated with us and with whom we have cooperated in the many years of our business existence that providing the demand for our product does not increase we will on July 15 increase our selling prices on the basis of 60s two-ply combed peeler Durene cones 5c per lb., and other numbers proportionately. We take this step in the hope and belief that it will serve to prevent any further decline in the living standards of our employees. We believe this or other similar measures looking to the restoration of market confidence are essential and they should be effected promptly throughout the industry."

•

Any Old Clothes?

FOR the rejuvenation of broadcloth shirts which have become a little the worse for wear—but not necessarily for the rejuvenation of the textile industry—Woolworth has been selling a pair of cuffs wrapped in cellophane and retailing at 10c. Printed directions with the package tell how to tear off the old cuffs and sew on the new. A similar rejuvenator is sold to replace worn collars. Less understandable under present conditions is the sale, by the same chain store, of renewable trouser pockets.

•

Cotton Price Comparisons

THE following are prices of key items in the cotton industry. Current prices are given with comparisons:

	June 15	May 15	June 15 1931	June 15 1930
Spot cotton, N. Y.....	5.35c	5.75c	8.45c	15.10c
20s/2 Carded Peeler Warps.....	13½c	14½c	19½c	27½c
60s/2 Combed Peeler Warps.....	33c	40c	49c	62c
38 ½-in. 64x60s.....	3½c	3¾c	4½c	5¾c
36-in. 4-yd. 56x60s....	3 5/16c	4 c	5¼	7½c
Denim, 2.20s.....	8½c	9½c	12 c	15 c

•

Callaway's Motto—

TYPICAL of his consistent effort to develop cotton-consumption-consciousness in this branch of the industry, Cason J. Callaway, as his last official act as president of the American Cotton Manufacturers Association just before his retirement in May, had prepared and distributed to cotton manufacturers throughout the South attractive three-color cloth signs, neatly framed, displaying the advice: "Help Yourself—Buy More Cotton Products." Three signs, prepared at Mr. Callaway's personal expense, carry the seal of the American Cotton Manufacturers Association.

•

Opens Yarn Department

THE Hurley-Johnson Corp., 25 Walker St., New York, has opened a yarn department under the management of Edward E. O'Brien, for many years vice-president of the Manley-Johnson Corp. The latter company has discontinued its yarn line.

•

Leases Eureka Plant

R. A. OLIPHANT, cotton merchant of Chester, S. C., has leased the mill building and warehouses of Eureka Cotton Mill No. 2 in that city and will use as cotton storage bonded warehouse. The machinery in this plant is being moved to new buildings associated with Mill No. 1.

•

Flather Heads Merrimack

ARTHUR LYMAN has resigned as president of Merrimack Mfg. Co., Lowell, and was elected chairman of the board. Frederick A. Flather, treasurer of Boott Mills, Lowell, was named president to succeed Mr. Lyman.

•

Enlarging Lane Mills

LANE Cotton Mills Co., New Orleans, will be enlarged 75%. A new building is to be erected and machinery from the Maginnis Cotton Mills, of the same city, which has been closed down for some time, has been purchased and is being installed in the Lane plant.

•

Lancaster Building Addition

LANCASTER (S. C.) Cotton Mills are building a four-story addition connecting Plant No. 1 and Plant No. 2. Plans for the addition, which measures about 100x125 ft., were prepared by Robert & Co., Inc., Atlanta, Ga., architects and engineers.

•

Hunter Stockholders Meet

COMMON and preferred stockholders of the Hunter Mfg. & Commission Co., meeting in Greensboro, N. C., June 1, approved action taken by the company since its affairs were placed in the hands of the special executive committee, headed by Donald Comer. Creditors of the commission house, including the mill interests of Captain Elliott White Springs, of Lancaster, S. C., and the Comers, of Birmingham, Ala., it is understood, preferred to continue the company as the selling agent for their mills rather than to place it in a receivership. The other mill interests associated with the Hunter Company were in accord with this action.

•

Harmony to Liquidate

HARMONY Mills stockholders have voted to liquidate. H. M. McCord Inc. has been appointed liquidating agent for the machinery and equipment of the company at Cohoes, N. Y. This machinery consists of approximately 250,000 spindles and 5,000 looms together with auxiliary equipment.

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TEXTILE WORLD'S

Wool Digest

IT TOOK courage to initiate the new low prices on worsteds. Further, the psychology underlying the move was apparently sound. By anticipating more than the utmost decline to be expected from chiseling, it was hoped to assure buyers that the subcellar had been reached, and that advances, not declines, would result.

Unfortunately past experience weakens the argument. While the first result was better buying, the new prices may yet become a target in the fight for business. There is no assurance that the new prices represent the ultimate extent to which sellers are willing to take a loss. If further sniping is to result, complete shutdowns would seem to be the only answer until a fair profit is obtainable.

Against this dismal picture, is the shining example of a large clothing manufacturing company which decided to improve quality rather than to lower its initial price range on fall suits, on the basis that the public is "fed up" on clothing made to sell at a price. This suggests that mills might watch their own customers; maybe the latter, too, are becoming disposed to listen to a quality appeal.—*Editor.*

Worsted Suitings Prices Lowest in 20 Years

WOOL goods prices are at the lowest levels in twenty years. Pace set for the industry by Samuel Hird, in cutting worsted suitings rates 25% at the end of May has been followed by virtually entire worsted group, and the question facing these mills in mid-June was: "Where do we go from here?" Discussion regarding the profit remaining after cut has been significantly scant; probably the less said about it the better. Worsted suitings enjoyed active movement for weeks immediately following reduction, despite doubt on part of cutting-up trade toward mid-June, due mainly to uncertainty as to what prices would do next. In announcing cut of 7½c. to 30c. on worsteds, American Woolen unofficially ascribed step to drop in primary market and economies in manufacturing costs. It is understood that larger companies can eke a profit at current levels due to low overhead, but numerous of the smaller worsted firms were understood in mid-month to be badly squeezed.

The hope expressed by leaders in the reduction move that this would bring prices to bottom, thus preparing way for an advance when fall buying improves, was not shared by others in the trade; these latter factors now regard price prospects for worsteds as more uncertain than ever. One happy aspect, however, was that woolens, notably women's wear fabrics, appeared to be resisting downward pressure very effectively during the first part of the month.

•

Yarn Prices Cut 2½ to 7½c.

DRASTIC reductions in worsted suitings prices weakened yarns, precipitating a general cut of 2½ to 7½c. in Bradford system yarns. Revision having been anticipated, it had little effect, and yarns moved unevenly through the month. Decline in call for swimsuit yarns, noted the second week of June was a decided disappointment to spinners; swimsuit output slackened about June 1, and this trend became more noticeable in following weeks, indicating that the bathing-suit season might end earlier than had been expected. Spinners still hoped for moderate duplicate business from these knitters, but were not confident on the point.

•

London Sales Move 79,000 Bales

SALES totaled 79,000 bales at close of London, Eng. Wool Sales according to cable from H. E. Reed, marketing specialist, London, to the Foreign Service, Bureau of Agricultural Economics. Bradford took 38,000 bales of Colonials and 3,500 of Punta Arenas, Continental sales totaled 37,500, comprising 22,500 bales Colonial, and 15,000 bales Putna Arenas. France took small quantities of greasy crossbreds, merinos and fine slipes. Best wools were down 5%, ordinary 10% from close of previous series.

•

Delay in Fall Goods Shipments Forecast

DRASTIC curtailment of output in New England wool goods mills promises to delay fall deliveries. Philadelphia wool goods jobber received letter June 7 from a Massachusetts weaver notifying him that, due to lack of stock and low operation, six weeks leeway will be needed between placing order and delivery of goods. Jobber was instructed to warn customers to this effect. This manufacturer's letter added that, aiming toward continuous operation, mill would not accellerate production until fall orders began to come in in volume.

•

Overseers Hold Semi-Annual Meeting

MORE than 600 members and guests of National Association of Woolen and Worsted Overseers attended semi-annual meeting, dinner and entertainment at Rocky Point, R. I., May 22. Every section of New England was represented.

Lawrence F. Richmond, Crompton Velvet Works, president, Rhode Island Textile Association, spoke on business conditions.

Officers to be elected at semi-annual meeting, Boston, November, were nominated: president—John F. Campbell, Providence; first vice-president—Abraham L. Booth, Woonsocket; second vice-president—John J. Fanning, Baltic, Conn.; third vice-president—John Marley, Lawrence, and R. McBride, Thompsonville, Conn. Other officers were renominated.

•

Machinery Activity 50% Below April, 1931

REDUCTION of almost exactly 50% in wool machinery activity during April, against April, 1931, is reported by Department of Commerce. Figures are based on statements from 762 manufacturers, operating 913 mills, and excluding 25 non-reporting manufacturers operating 27 mills. Comparative loom activities show drastic curtailment of operation since last year and in some instances, a reduction almost as great between March and April. Activity of wider than 50-inch looms was 28.4% of total hours in April against 47.9% March and 53.5% in April, 1931; 50-inch or less, 21% active in April against 26% in March and 41.9% April, 1931; carpet and rug activity 27.5% in April against 30.7% in March and

44.2% in April, 1931. April card activity stood 29.9% against 44.8% in March and 57.2% in April, 1931; comb operations aggregated 36.3% in April, a decisive drop from 51.5% in preceding month and less than half the 81.5% activity in April, 1931. Substantially the same situation existed in spinning spindles; woolen spindles ran 25.9% in April against 44.9% in March and 55% in April, 1931; worsted spindles operated 28.8% in April against 36.6% in March and 56.7% in April last year.

•

Wool Consumption Declines 60% in April

WOOL consumption during April was nearly 60% below same month last year, Department of Commerce figures indicate. April wool entering manufacture totaled 19,954,006 lb., grease equivalent, against 29,384,127 lb. in March and 47,709,971 lb. in April, 1931.

The 1931-32 consumption differential is slightly less than shown here, as figures for current April come from 413 manufacturers while those for April, 1931, were reported by 432 firms. Remaining 1932 monthly consumption, grease equivalent stood: January, 34,252,515; and February, 34,426,148.

•

Botany Plan Approved

THE plan of the receivers of the Botany Consolidated Mills to turn over the merchandise supplies and trademark rights of the Garfield, N. J., plant to the Botany Worsted Mills, Passaic, N. J. was approved June 3 by Judge Fake, Newark, N. J. Botany Worsted acquires the property on payment of $185,000; the sale gives Botany Worsted use of the trademark "Garfield" under which the Garfield mill sold its product. The change removes Botany Consolidated from the operating field, making it solely a holding company.

A fashion card prepared by American Woolen Co. featuring fabrics styled by Paul Brion, Paris designer now on company's New York staff

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•

American Woolen Sells Realty

REALTY holdings of American Woolen Co. in Webster and Dudley, Mass., excepting agents' residences, were sold at public auction for $63,000, recently. Properties had been used to house employees of Slater mills later sold to American Woolen Co., and employes of Chase Mills, Chaseville.

•

Receiver Acquires Mill

THE Barnai Worsted Co., Woonsocket, R. I., in receivership since 1925, will be taken over by Sylva Lareau, receiver, at request of M. & F. Worsted Mills, Inc., major creditor, with the approval of 85% of the creditors. A decree authorizing sale of the property was entered in Superior Court June 1.

•

Gilsum Buys Eyers Mill

GILSUM WOOLEN CO., woolen cloth manufacturers, Gilsum, N. H., has purchased the Eyers Woolen Co. mill there, and will operate it, placing Walter H. Eyers, former owner, in charge as superintendent.

•

Price Trends in Wool

THE following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	June 15	May 15	June 15 1931	June 15 1930
Fine and fine med. territory	36c.	$0.42	$0.59	$0.72
Ohio 3/8s	16c.	.18	.22	.30
2-40s 60s wstd yarn	1.10	1.12½	1.32½	1.50
3192 serge	1.22½	1.35	1.65	1.90

Southern Hemisphere Stocks Show Increase

AVAILABLE wool supplies May 1 in Australia, New Zealand, Argentina, and Uruguay were 8% above the same date a year ago, but 15% less than May 1, 1930 when stocks were unusually high, Bureau of Agricultural Economics reports. Current season's exports from these countries up to May 1 total 1,246,000,000 lb., 4% below corresponding period of 1930-31, but 16% above 1929-30. Australia and New Zealand have shipped more wool this season than last, but exports from South American countries have decreased.

•

Light Month in Fabrics

MODERATE sampling of fall goods, including both men's and women's fabrics, and a light spot demand for lightweights, featured the wool goods market in mid-June. There was still a considerable quantity of summer merchandise available; prices were weak and mills offered concessions to effect clearance, with only piecemeal contracting.

•

Blanket Trade Change

WALTER H. BRADLEY, Winthrop (Me.) Mills, confirmed report that negotiations were under way for acquisition by his firm of the blanket business of W. S. Libbey Co., Lewiston, Me.

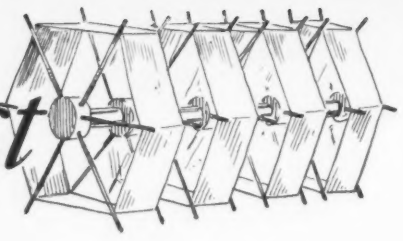
•

Walter E. Schuster Dies

WALTER E. SCHUSTER, president, Schuster Woolen Co., East Douglas, Mass., and treasurer of the Millbur (Mass.) Woolen Co. and the Hayw huster Co., died June 13, at East Douglas. He was 56 years old, and had long been a leader in Massachusetts civic affairs.

TEXTILE WORLD'S

Silk Digest



OUT of what appeared to be complete chaos in raw silk, a hope of stabilization seems to be emerging. The action of the Japanese Government in cancelling the Asahi-Gerli contract and arranging for orderly distribution of the stocks involved; the trend toward socialization of the silk industry in that country, with of course definite production control—are both radical steps but warranted by the emergency.

Until stability is definitely assured, the goods market here is "hog-tied." "Dollar silk" is no incentive when next week's price may be 75c.

The whole situation is about as unpredictable as the course of a hurricane, but for the moment the future looks a little brighter.

—*Editor.*

Current Problems Obscure Tariff Proposal

SILK industry is phlegmatic regarding tariff threat. Apart from a few leaders who deplored proposal as menace to American mill workers, trade generally takes apathetic view of petition presented to Congress by rayon producers asking imposition of 75c. per lb. tax on all raw silk imports. Consideration of brief, noted in TEXTILE WORLD, May 28, was obscured by major issues confronting Congress as adjournment neared, and rayon producers plan to resubmit request in fall. Silk trade's reaction to proposal paralleled that of Congress; the issue yielded precedence to more immediate, and temporarily, at least, more vital matters. With "dollar silk" on the horizon and prices fluctuating hourly, this petition for a tariff seemed to both importers and manufacturers, a very remote issue. Silk observers who divorced themselves from their current problems, however, did not deprecate the issue; indications pointed to early steps toward organized opposition by the silk industry once the immediate situation is fairly well in hand.

•

Mills Make Tentative Fall Fabric Plans

CONDITION of the broadsilk industry, critical when June opened, had improved slightly in mid-month, reflecting betterment of primary market tone. Balance between success or failure is now so delicate for most firms, that even the briefest breathing spell is a life-saver. Losses incurred due to raw silk decline, now constitute outstanding problem of trade. Mill operation is well above what demand justifies; however, pressure to liquidate has slackened slightly; early June estimates placed output at 60% of capacity.

Strict secrecy surrounds all plans for fall lines, but leading companies are understood to have tentative schedules ready. Backward seasonal condition points to unprecedentedly late showings, with formal openings completely taboo. Transparent velvet viewed as fall leader, and occasional advance business on these piles is reported. Summer sheers, notably georgettes, were being cleared at deplorably unprofitable levels, in mid-month.

•

Less Raw Silk Activity

SILK weavers might well emulate low inventory policy of raw silk importers; yet importers themselves could go further. May imports were 19% below May, 1931, against decrease of 27% in mill deliveries. Warehouse stocks May 31 totaled 59,159 bales against 32,688 same day last year. May imports aggregated 34,233 bales compared with 30,953 in preceding month and 42,264 in May, 1931. May deliveries, 32,923 compared with 35,779 in previous month and 45,073 in May, 1931. Figures by Silk Association.

•

Action on Design Bill Expected Next Session

A BILL for the registration of textile designs, planned to suppress piracy, was introduced into the House, June 8, and sponsored by the Silk Association and the National Retail Dry Goods Association. A favorable report by the House Committee on Patents was expected. Although there was no hope that the legislation might be enacted before Congress adjourned, there is every probability that the measure will get early attention and action in the next session, convening in December.

As noted previously in these columns, the last great obstacle to this type of legislation was removed last month when a compromise between retail interests and textile manufacturers was effected by agreement reached at a hearing before the House Committee.

•

Tram Yarn Urged For Milanese-Tricot

QUALITY movement finds sponsor in Dean Hill, executive secretary, Throwsters Research Institute. In statement June 4, he urges milanese and tricot fabric knitters to trade-up by using tram silk. He points out that glove silk originally was made from two and three thread, 15-denier, eight turns Japan tram, the pre-depression peak silk prices causing knitters to substitute single thread 20/22-denier raw silk in place of thrown. "Today's low price of silk," he adds, "enables manufacturers to use silk tram again, thus winning back profitable trade sacrificed when change resulted in production of less satisfactory fabrics."

"Use of tram silk gives quality merchandise," Mr. Hill continues, emphasizing the value to knitters of allying themselves with current growing demand for higher-grade merchandise.

•

British Throwsters Join Institute

THROWSTERS Research Institute spreads its message overseas. Dean Hill, executive secretary, announced in early June that members recently admitted to organization included firm of Wm. Frost & Sons, Ltd., throwsters, Macclesfield, Eng. W. R. Wadsworth, director, has written the Institute warmly commending its stand on thrown silk problems and pledging cooperation of his company.

•

Primary Market Outlook Slightly Improved

SILK picture is brightening but improvement is still too tenuous to do more than inspire faint hopes. Japanese Government's announcement that Asahi-Gerli contract for two-year-old indemnity silk has been cancelled, strengthened raw silk market in New York, sending prices steadily upward through early June. Levels rose 17c. within a week, but up to mid-month advance had not precipitated any spir-

ited buying. Cancellation of Asahi-Gerli contract affected 98,000 remaining bales, which Japanese Government arranged to buy back at 455 yen per bale. Re-purchase may be financed by government bond issue, was report in advices to New York importers. Multiplicity of rumors as to final disposition of surplus included report Japan would sell it for domestic use exclusively.

Conviction grows among New York silk leaders that recovery is impossible until surplus is definitely out of picture; many urge it be destroyed, contending loss incurred thereby would be more than balanced by help such action would give to Japan's silk prices.

•

Report Japan May Socialize Industry

POSSIBILITY of curtailment in Japan's spring cocoon output was a major issue in the silk industry this month. Advices from Yokohama estimated crop to be 10% below last year, but skeptical New York importers said 5% would be an optimistic figure. Indications, however, point to possible adoption shortly of new and sterner policy by Japanese Government. Acute widespread financial distress among filatures, hysterical dumping for export, and general demoralization is believed likely to force government to drastic curtailment action; advices reaching New York and which received credence in conservative circles, intimated government might assume direct control of industry by legislative enactment, for emergency period. Such a program while feasible in modified form, presents many difficulties, foremost among which is highly individualistic and primitive character of industry in remote areas.

•

Doherty Silk Co. In Receivership

HENRY DOHERTY SILK CO., Clifton, N. J., was placed in equity receivership June 10, Henry Hausner, treasurer of the firm, being named custodian receiver under $5,000 bond. Veeanday Corp., holding 51% of the 5,000 shares outstanding, made complaint as majority stockholder, and Commercial Factors Corp., leading creditor, consented. Liabilities are stated to exceed $2,000,000; assets comprise, realty $150,000; merchandise $150,000; cash about $3,500 and accounts receivable about $2,000. Complaint alleges that Jan. 1 to April 30, this year, company's loss totaled $101,650, following a net loss of $376,671 in 1931.

•

Silk Industry Field Day

SILK industry leaders forget troubles on the golf course. Westchester Country Club, Rye, N. Y., opened its doors to Silk Association of America, June 22, and members enjoyed a strenuous day of golf, tennis, and swimming. Luncheon and dinner were served at clubhouse, E. C. Rossmassler, Sauquoit Silk Mfg. Co., being in charge of arrangements, assisted by Charles L. Auger, Otto Froelicher, Thomas B. Hill, Sol C. Moss, A. W. Orth, Paul A. Salembier, John N. Stearns, Jr., Henry E. Stehli, David I. Stern and William O. Straehler.

•

Rail Silk Shipments Gain

RAIL transportation gains in favor with silk shippers. Traffic bureau Silk Association announced June 10 that May transcontinental rail shipments of raw silk increased 5% over April and 23% over last year's low point. Ports of arrival of May cargoes en route by rail for New York: Seattle, 4,352 bales; San Francisco, 2,171; Vaucouver, 5,237 and Los Angeles, 699.

•

Seidel Represents Columbia

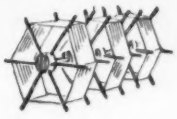
C. WALTER SEIDEL, Chicago, has become western representative for Columbia Narrow Fabrics Co., Shannock, R. I., on elastics for underwear, pajama and women's wear trade. Mr. Seidel is representative in the same territory for E. Gerli & Co., raw silk, Duffy Silk Co., commission throwing, and Kahn & Feldman, Inc., on thrown silk.

•

Low Silk Prices

THE following are prices of key items in the silk industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	June 15	May 15	June 15— 1931	1930
Crack XX 13/15 white 78%.....	$1.24	$1.35	$2.20	$3.62
Tram, 5 thd Japan 85%	2.00	2.30	3.40	4.40
Crepe 3-4thd 14/16 Bob	1.70	1.75	2.30	2.90
60s-2, spun silk.....	2.75	3.35	3.55	4.15



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Sales Decline 9.8%

APRIL broadsilk sales by yardage were 9.8% below March and 24.3% below April, 1931, Silk Association reports. Stocks April 30, were 3.3% below March 31.

•

Stehli Increases Output

STEHLI SILKS CORP., Waynesboro, Va., increased production of broadsilks in mid-month, necessitating reinstatement of numerous employes who had been laid off for some weeks. Managers were advised June 8 by New York headquarters that heavier shipments of raw materials were en route.

•

Pilgrim Plush Receivership

PILGRIM PLUSH CO., Providence, R. I., has been placed in hands of Roland H. Ballou, as temporary receiver, under $25,000 bond. Request by Mr. Ballou, as stockholder, that creditors be enjoined from suing company or otherwise interfering with receiver's duties, was granted by court.

•

C. K. Eagle Consolidates N. Y. Offices

C. K. EAGLE & CO., broadsilks, June 13, consolidated New York offices at 530 Seventh avenue, discontinuing Madison avenue branch, thus facilitating service to retail and cutting-up trade by garment zone location.

•

Silk Mill for Sale

COMPLETE mill and equipment of Niagara Silk Co., silk glove and glove silk underwear manufacturers, Brantford, Ont., has been placed on sale by Toronto bank, as receivers. Equipment includes 540 silk spindles and 76 broadsilk looms.

TEXTILE WORLD'S

Rayon Digest

RAYON yarn producers take a long step forward by deciding on drastic curtailment; then they take an equally long step backward by cutting prices.

If there were any hope that a 10c. price cut would stimulate business materially, there might be some justification for the latter move. But producers know—or ought to know—that such a hope does not exist.

Nor does it help much to blame it on silk. In fact, the rayon industry might profit by considering the silk industry. The latter, at the moment, is completely tied up with the Japanese situation—and if that doesn't mean "tied up," nothing does. The rayon future, on the contrary, is controllable by a handful of yarn manufacturers. They started to exercise that control and then stumbled. A new start is in order.—*Editor.*

Drop Term "Rayon" In Promoting Acetates

RAYON producers favor disassociating cellulose acetate yarns from term "rayon" in promotion. Following the long-established policy of Celanese Corp. to sell their product as synthetic yarn rather than as "rayon," other acetate producers, including duPont Rayon Co., Viscose Co., and Tubize Chatillon Corp., now incline toward emphasizing acetate yarns by brand name rather than by the generic term "rayon." The trend is attributed to the growing consumer opinion that the word "rayon" applies only to viscose process yarn.

•

"Pure Dye" Knit Rayon Standards Approved

SPONSORS of the movement to standardize knitted rayon underwear have won a technical victory. A proposed standard for "pure-dye" rayon fabrics, fixing tolerance for foreign matter weighting at 1% on underwear fabrics and 4% on outerwear fabrics and home furnishings, was approved at preliminary trade conference held June 9 in New York. Attendance totaling eighteen, nearly one-third of which were trade-press representatives, was sorry commentary on industry's interest in this vital question. Conference was called by Division of Trade Standards, Department of Commerce, and L. R. Gilbert of that department presided.

Proposed standards were presented by Frank Stutz, Better Fabrics Testing Bureau, N.R.D.G.A. Besides tolerances for foreign matter they contain test methods covering moisture content, water-soluble materials and mineral weighting. Pioneers present showed keen interest, but prospects for application of standards to industry are not encouraging. New conference about July 1, was projected, with doubt expressed whether this might not be postponed due to knitting trade's disorganized condition.

•

Price Situation Muddled

RAYON price situation is muddled and prospects are more uncertain than any time since winter. Stability, industry's best weapon in combating silk competition, was sacrificed in 10 to 20c. reduction of viscose process yarns, announced first by Viscose Co. and followed unwillingly by other companies. Revision did much to upset confidence created earlier by news of decision to close plants, and market tone in mid-month was acutely delicate. Criticism of cut was voiced both privately and in print by producers who felt that it merely excited customers to look for further reductions.

However, the market continues hopeful, and stock situation is believed to be improving. Yarn surplus in mid-month approximated 35,000,000 lb., which should be somewhat reduced by the current shutdown of viscose process plants by Viscose Co., DuPont Rayon Co., Delaware Rayon Corp., and others. June sales, so far, have been only moderate and unless sharp pick-up is registered before end of month, it is likely shutdown will be continued through July.

Position of producers as regards price guarantees is complicated. Viscose Co., which has consistently refused to pledge prices, now is joined by Industrial Rayon Corp., which firm withdrew all guarantees. American Enka Corp. and American Glanzstoff Corp., retain 90-day guarantee for knitters, cancelling 60-day guarantee for weavers. Policies of other leading firms substantially unchanged.

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Dishonest Claims Peril to Quality Drive

DANGER faces new quality boom. Rayon producers, while heralding and cooperating in this war against price promotion, point out that quality promotion is worse than useless, unless merchandise justifies that term. We quote one rayon executive who voices an opinion growing in the trade: "Dishonest use of word 'quality' in promotion may seriously injure good work being done to trade-up on textile selling. Manufacturers are taking their advertising copy and just re-writing it, inserting word 'quality' here and there to give it the new touch, and the merchandise referred to has not been changed either in yarn or construction."

Other rayon producers who support this view, emphasize that quality promotion, to be effective, must start with the mill, and must be in fabric or finished merchandise. Otherwise they say, whole quality movement will collapse, leaving consumer more suspicious and less purchase-minded than ever.

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Producers Study Silk Rise

RISE in silk prices from $1.08 to $1.25 in early June, found rayon producers once more discussing silk-rayon competitive problem. Synthetic yarn industry seemed agreed that continued advance of silk would affect rayon market, but it was a toss of the coin whether the effect would be beneficial or otherwise. Toward mid-month rayon sales were sluggish, with silk tone somewhat healthier. The widening differential was expected to help rayon by minimizing competitive factor, with the new problem, however, that rising silk levels would attract manufacturers who had been won over to rayon by silk instability.

•

Dull-Luster Fabrics Important for Fall

DULL-LUSTER synthetic yarns promise to occupy an unusually big place in the fall picture. Each month finds these yarns more important, thanks to fashion indorsement, and merchandise managers of leading rayon producing firms plan emphatic promotional effort to push low-lusters during next few months, campaign to begin in late July. Drive will highlight thought that dull-

luster woven fabrics are now a basic dress fashion, also accenting their advantages as draperies. Sales executives feel price appeal for yarn is unsound; they point out that quality stores in metropolitan cities now sell dull-luster rayon apparel at—or above—silk apparel prices, and enjoy good volume.

Significant aspect is drapery trend away from more glossy rayon surfaces, as reported by important house furnishing fabric manufacturers; these firms are working individually and with rayon producers, to develop dull-luster drapery fabrics for coming season.

•

Sales Slow in Mid-June

RAYON sales reflect prevailing hesitancy. June opened with moderate demand but mid-month found market very sluggish, neither weavers nor knitters showing interest. Delayed fall season and difficulty of forecasting outlook prompted weavers to defer contracting. Fair call for dull-luster acetate and spun rayon yarns was reported, but sales were well below last month. Producers hoped for pick-up in dull acetate demand before mid-summer due to fashion stress on low-sheen fabrics for fall.

•

New Paris Endorsement

PARIS again endorses synthetic yarns. Eight out of twelve dresses sent to New York this month by Vera Borea, Paris designer, are made of suede-dull crepes and jersey fabrics manufactured from duPont's new acetate yarn, dull "Acele." This signifies entry of American rayon into new field, as hitherto permanently dull fabrics have been made only from imported Albene yarns. Dresses, distinctly of quality type, have been displayed by Best & Co., New York.

•

Japan Opens World's First Rayon Futures Market

THE world's first Rayon Futures Market has been established at Fukui, Japan, and trading started last month, according to a report from Consul J. Holbrook Chapman, Nagoya, Japan, made public by the Commerce Department. Quotations are made for the current and two future months. Opening day transactions totaled 500 bales. June delivery was quoted at yen 83.20 and July delivery at yen 81.50 per 100 lb.

•

Tubize Builds Reservoir

WATER service at Rome, Ga., plant, Tubize Chatillon Corp., will be improved by 1,250,000 gal.-storage reservoir, now under construction. New container measures 100 x 200 feet, nine feet deep, with 18-in. side of reinforced concrete and concrete bottom; it is located near present reservoir and will be filled by present pumping equipment.

•

Dividends Cut 50%

CELANESE Corp. of America has cut dividend due July 1 on 7% cumulative prior preferred from $1.75 to 87½c. Quarterly dividend of 50c. a share on common against $1.00 paid previously had been declared by Industrial Rayon Corp.

•

Cartel Plan Shelved

PLANS for a German-French-Belgian cartel of viscose rayon producers have been temporarily shelved. George W. Berkalew, Assistant Trade Commissioner, Paris, reports to Department of Commerce that producers in the three countries find difficulty in reaching common basis of negotiation. He sees possibility of early resumption of conversations but is not optimistic on outlook, as "proposals by French and Belgian interests may complicate the situation further."

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April Rayon Imports

CONSUMPTION of imported rayon and other synthetic textile fibers totaled during April (singles) 22,773 lb., value $19,365, as reported by Bureau of Foreign and Domestic Commerce, Department of Commerce. Warehouse withdrawals aggregated 3,250 lb., value $1,689.

•

Celanese Enters Olympics

CONTRIBUTIONS of Celanese Corp. to coming Olympic games in Los Angeles is pool pajama suit introduced at recent fashion show staged by Celanese aboard S. S. Leviathan, at New York. Suit is of jersey fabric, with red-white-and-blue as color motif: trousers are blue, blouse is white and bears official insignia of American Olympic Games Committee, and collar and cuffs are red. Trousers and blouse are united with Talon slide fasteners. The suit has been approved by official Olympic clothing committee and will be worn by American Olympic Swimming Team members during the games.

•

Card Identifies Spools

IDENTIFICATION of shipping spools by denier and twist is simplified for customers of American Bemberg Corp. in new card which lists the identification marks, olive, red, orange, etc., tallying each yarn with its denier and twist specification. Customers may determine characteristics of each spool by comparing the color of the plug at the spool end with the combinations listed on the card. Copies of the card are being sent out to Bemberg customers.

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Bemberg Cuts Prices

CONSISTENT with the general downward trend in synthetic yarn prices, American Bemberg Corp. announced a 10 to 30c. reduction, effective June 15, on grades between 40 den. 30 fil. and 180 den. 135 fil.; the new list quotes 150 den. untwisted at 80c., skeins, 85c. spools and 90c. cones; and 100 den. $1.00 skeins, $1.05 spools and $1.10 cones, representing a cut of 10c. on these numbers.

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Rayon Prices Lower

THE following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

Viscose Process	June 15	May 15	June 15 1931	June 15 1930
100 denier (40 fils.)	$0.80	$1.00	$1.10	$1.50
150 denier (40 fils.)	0.65	0.75	0.75	1.20

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TEXTILE WORLD'S

Knit Goods Digest

A GOOD salesman knows when to quit. He refuses to jeopardize his future chances by attempting to force his goods upon a temporarily unwilling and uninterested prospect.

Manufacturers of heavyweight ribbed underwear have applied this principle of salesmanship. By withdrawing their lines from an unreceptive market, they avoided the price degeneration which would surely have accompanied the bitter competition for what little business might have been secured. As a result, the whole market tone was strengthened, and future prospects of a firm price position and relatively keen demand were indicated.

These manufacturers have set an example for the rest of the industry—an example, incidentally, for business in general. One way to reach the end of the price war is to assume the role of a spectator, rather than of a combatant.—*Editor.*

Sales Key Topic at Outerwear Convention

SALES, distribution and associational problems were the highlight topics at fourteenth annual convention of National Knitted Outerwear Association, June 16, New York. The convention, called by Harold R. Lhowe, executive director, on barely two-weeks notice, comprised a morning session, luncheon meeting, afternoon session, concluding in evening with annual dinner. Chief scheduled features were: annual address by Daniel Rheinauer, New York Knitting Mills, president; report by Mr. Lhowe; by-law revision to rearrange relationship between National and district associations; and luncheon talks on sales-distribution by John Stern, publisher *Knitted Outerwear Age*, and John Sichel of Dearnley Bros., chairman, association's sales-distribution committee.

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Mesh Vogue Changes Hosiery Machinery Status

EQUIPMENT changes, necessitated by mesh-lace vogue, were chief development in full-fashioned hosiery machinery situation during 1931. Installation totaled only 16% of 1929 total, but were interesting as showing trend to 45-gage type, and increasing use of 20-section machine, reports Industrial Research Department, University of Pennsylvania, following trade-wide survey. Strong consumer mesh-lace call precipitated widespread installation of necessary tackle, bringing fundamental change in nature of industry's older equipment. Significant data of report: 449 new machines, bringing industry's total, March 1, to 15,000; new equipment comprised over 66% 45-gage and nearly 55% 20-section. Of new leggers, 339 machines, 62.5% were 20-section type; of 110 new footers 30.9% were 20-section, 45.5% being 24-section. Report notes complete elimination of 39-gage machines in new installations, 8.4% of which comprised the 42- and 45-gage types.

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Underwear Withdrawal

MANUFACTURERS of heavyweight ribbed underwear who withdrew lines from market May 1 for a month, have extended withdrawal through June. Letters sent out to customers by leading mills in early June stated that fall lines would not reopen until "after July 1." Lack of interest in heavyweights was responsible for extension. Meanwhile, mills accept orders subject to new prices to be announced when lines reopen. Production of winter underwear is being carefully watched, and stocks are low, presaging a healthy reception for merchandise on announcement of prices.

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Fredk. M. Stowell Dies

FREDERICK M. STOWELL, president, Munsingwear Corp., and outstanding figure in hosiery-underwear industry, died June 5, Minneapolis Hospital, after week's illness. He was born in 1870 at Holden, Mass., and went to Minneapolis, 1889, beginning 40-year career with Northwestern Knitting Co., Munsingwear's antecedent company, as utility clerk. Years brought swift advancement and in 1913, he became president of his company. A decade afterward he held four posts: president, newly acquired Wayne Knitting Mills, Fort Wayne, Ind., and president of both Munsingwear Corp. and new holding company, Munsingwear, Inc.; also chairman, board of directors, Vassar Swiss Underwear Co., Chicago.

•

Non-Run Hosiery Patent Situation

THE two non-run full-fashioned hosiery fabrics now holding attention of trade embody loops long used for ornamental effects. Hence validity of non-run patents is questioned. Promoters of new stockings point out, however, that patents cover use of these loops for making entire fabric run-proof and announce their intention of employing patent laws to suppress all infringement. Owners of the Schwartz patent, issued eight years ago, believe they have basic invention for non-run fabric.

Schwartz stockings, controlled by the Textile Patents Corp., Philadelphia, have been delayed in reaching market by mechanical improvements toward sheerer construction and closer knitting now under development at Textile Machine Works, Reading, Pa. The Schwartz fabric as now produced is illustrated roughly in Fig. 1. One of the patent claims reads: "A knitted fabric comprising rows of loops, each row consisting of a plain course and an interlocking course, each interlocking course being formed by spreading and interlocking certain loops with their neighbors and in skipping one or more loops, symmetrically by alternates in succeeding rows." Another claim covers "improved method or process."

The Alfred Graenz invention, which originated at the Miller Hosiery Co., Inc., Bethayres, Pa., involves the looping shown in Fig. 2. One patent claim reads in part as follows: "A non-run knitted fabric . . . . with substantially each wale containing a multiplicity of loops each of which has a bight portion thereof displaced from an adjacent existent wale and from an adjacent course, and the courses wherein such displaced loops occur being in such close proximity as to render substantially the entire extent of the fabric of a non-run character. . . ." Another claim covers the method involved.

This month a further patent, No.

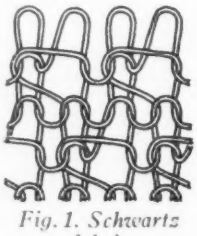

Fig. 1. Schwartz fabric

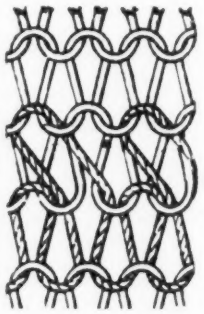

Fig. 2. (right) Graenz fabric

1,862,514, was granted to Mr. Graenz, who has assigned it to the Non-Run Fabric & Machine Co., Inc., New York, a new company representing the inventor's interests. New patent applies to both fabric and mechanism and involves "displacing selected loops, each loop being displaced from a wale in the body of the fabric into an adjacent wale while simultaneously moving the thread for a succeeding course of loops." Options on both Graenz patents are held by Gotham Silk Hosiery Co.

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Hosiery Wage Parley On; Rate Change Unlikely

PROGRESS is being made in negotiations between Full Fashioned Hosiery Manufacturers of America and American Federation of Full Fashioned Hosiery Workers, regarding maintenance or readjustment of wage agreement expiring Aug. 31. With negotiations still in introductory stage, no definite information is available. Manufacturers' association met June 8, Philadelphia when report of negotiations committee was understood to have been discussed; no specific action taken and little progress made.

Meanwhile, Emil Rieve, Federation president issued statement that present agreement has fulfilled purpose in helping union manufacturers secure their share of business, and that further reductions would not help situation and were not to be considered, unless "totally new facts are uncovered."

Trade believes best policy would be to continue present scale until 1933, pending efforts for price stabilization.

Position of non-union manufacturers was clarified in statement June 9 by William Meyer, president Apex Hosiery Co., and president National Association Hosiery and Underwear Manufacturers, following Philadelphia meeting of Associated Manufacturers of Full-Fashioned Hosiery of which he is also president. He said: "Non-union mills' wage scale, 10% above Federation rate, has not been changed since last fall and no change is contemplated."

•

$50,000 Addition Starts

VIRGINIA UNDERWEAR CORP., Martinsville, Va., proceeds soon with superstructure for three-story mill addition, to cost over $50,000 with equipment. Finley & McCoy, Martinsville, have building contract.

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Throwing Unit Installed

THIRD unit of throwing machinery recently ordered is being installed in new building at Charlotte, N. C. mills of Hudson Silk Hosiery Co. Unit comprises 5B doubler twisters and high speed twisters. Addition to mill has been constructed increasing floor space 34,000 ft.; 40 knitting machines were installed recently. Force of 450 operatives will be raised to 600 when expansion is completed.

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Chattanooga Yarn Golf

THOMAS A. BOWLES, of the Alabama Hosiery Mills, Decatur, Ala., with net score of 128 for 36 holes, won first honors at seventh annual golf tournament of Chattanooga (Tenn.) Yarn Association, May 26 and 27. Annual banquet and presentation of prizes, always colorful, was held Friday evening, May 27. Association members: Flake Belk, Dave Blevins, Dudley Bryan, French Campbell, Ralph Ewing, Bob Griffith, H. G. Gross, Charles Hall, Stan Hart, Don Hurlburt, W. L. Jackson, Ed. Kimball, Wilbur Lawson, Bob McDonald, Stan McInnes, Tom Moore and Bill Purse.

•

Rogers Mill Moves

ROGERS HOSIERY MILL, Burlington, N. C., has been reorganized as Rogers Hosiery Mills, Inc., capital $50,000, and is being moved to Denton, N. C. J. G. Rogers, owner of Burlington mill, is president of new organization. Output includes hosiery and other knit goods. Authorized stock 500 shares $100 par value, and 500 common, no par. $3,300 stock subscribed by J. G. Rogers, N. Val Johnson, W. G. Morris, and others, of Denton, N. C.

•

Acme Mills Expands

AS CROWNING touch to $200,000 expansion, Acme Hosiery Mills, Inc., Asheboro, N. C., are installing 72 full-fashioned hosiery machines, bought from Signature Hosiery Mills, Philadelphia; installation increases equipment total to 102. Current completion of three-story mill addition, 102 x 40 ft., raises property value to $250,000, and hosiery output capacity to 1,500 doz. pr. daily. McCrary Hosiery Mills, Inc., adjoining, same ownership, has 800 seamless machines.

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Hosiery Exodus From Wisconsin Continues

ANOTHER hosiery company finds Wisconsin's tax, labor cost and other restrictions detrimental to satisfactory operation. M. A. Freschl, vice-president, Holeproof Hosiery Co., confirming report company would move men's seamless hosiery division of Milwaukee mills to unspecified location in South, said move was necessitated by high production costs and State regulations in Wisconsin which give southern knitters of men's seamless hosiery an advantage northern mills cannot meet. Departing division constitutes 25% of Holeproof's Milwaukee organization, based on total of employes, and will reduce number of firm's Milwaukee mills to four, rendering 200 operatives idle. Two units will be abandoned, leases having expired May 1. No change in full-fashioned hosiery division remaining in Milwaukee, is expected. Decision is significant as following announcement, TEXTILE WORLD, Apr. 9, 1932, that Bear Brand Hosiery Co. had dropped plan to expand Beaver Dam, Wis. plant, and instead would expand its Kankakee, Ill. unit.

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Hosiery Men Meet

MAJOR problems facing Mid-West hosiery-underwear manufacturers were considered at conference, June 22, Chicago. Program featured address by Earl Constantine, managing director, National Association of Hosiery and Underwear Manufacturers. Conference paralleled meetings previously held in South and Pennsylvania.

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Circle Bar Co. Enlarges

CONTRACT awarded by Circle Bar Knitting Co., Kincardine, Ont., for new mill building, equipment to Prince-Smith & Stells Ltd., Keighley, Eng. Addition, four floors with basement, brick-steel construction, 50 x 125 ft., will house worsted spinning plant.

TEXTILE WORLD'S

Processing Digest

BUSINESS being a bit dull down the old alley, the more progressive finishers have found it worthwhile to explore new thoroughfares. As a result there have been developed several new, or improved, finishes. Examples of such activity are the production of so-called tarnish-proof fabrics for use in containers for silver-ware; suede-finish cottons which are leather-like in appearance, stronger than the original gray goods, and waterproof; and latex-treated materials for a wide variety of uses.

Needless to say, this progressiveness is not universal. Too many are still sitting tight and deploring conditions.

No one of these or similar new fields offers an unlimited opportunity for the industry as a whole. Each could easily be ruined by over-production. But widespread application of initiative might lead to a sufficient number of by-ways to promise at least some profit to all.—*Editor.*

New Preshrinking Process

DEVELOPMENT of a new preshrinking process applicable to shirtings, dress goods, pajama fabrics, and other materials has been announced by Carnac Cottons, Inc. This method known as the Carnac-Permafit process, is said to pre-shrink cotton goods to such an extent that there is left in the fabric less than 1% of possible shrinkage through laundering. It is stated also that the Carnac process imparts a soft, fine luster, and silky handle to the fabric. Technical details of the method, other than the statement that shrinkage takes place during the finishing operation, have not been made public although patents covering the process are pending.

•

Hosiery Dyer's Problem More Complex

THE radical changes which the developments of the last 25 years have produced in the demands upon the hosiery dyer were emphasized in a paper entitled "Dyeing of Cotton-Silk Hosiery" at the annual meeting of the alumni association of the Philadelphia Textile School by Joseph E. Goodavage of the class of 1921. Twenty-five years ago, the speaker stated, the dyeing of hosiery consisted of production of a few staple colors such as tan, black, gray, and white. A few years later, in 1914, we found the dyer applying such colors as copenhagen, wistaria, night-blue, tango, etc. With the introduction of the short skirt these colors were replaced by the various flesh and sun-tanned tones of the present day.

Mr. Goodavage described the three principal methods in use for dyeing cotton-silk hosiery: the two-bath method, the single-bath method, and the acid method.

Due to the improvements in knitting machines and also to the fineness of the silk used, he stated, the dyer has witnessed the introduction of a better knit article, and one of better quality. In order to maintain the quality of the improved hosiery, he concluded, the present-day dyer is compelled to be extremely careful in processing it.

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Isoelectric Point of Wool

RESULTS of research to determine the isoelectric point of wool are reported in the June issue of the Bureau of Standards *Journal of Research*. In these studies which were made by the research associate of the American Association of Textile Chemists and Colorists, raw wools from Idaho and from Australia were thoroughly cleaned by extraction with an organic solvent. New worsted cloth was scoured with soap and then extracted. Suspensions of these wools in buffer solutions of different pH values were prepared by grinding the dry wool to a fine powder and shaking the powder in the buffer solution. The movement of the particles produced by placing the suspension in an electric field was measured. The pH at which the electrophoretic velocity of the wool particles was zero; that is, the isoelectric point of the wool, was found to be 3.4.

Although the wools studied came from widely separated localities and their nitrogen contents were slightly different, the results point to the fact that the isoelectric point is very slightly or not at all affected by small differences in composition. Likewise the electrophoretic mobility of wool particles was found to be independent of their size and shape in the size range from 5 to 9 microns.

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Properties of Starches Studied

SOME physical properties of potato, canna, corn, wheat, rice, and dasheen starches have been studied by the U. S. Department of Agriculture. Length and width measurements of both the raw and swollen starch granules were taken, consistency determinations of pastes at one concentration and temperature were made, and penetrating and coating powers determined by examining cross sections of sized yarns and fabrics. Relations between these properties and stiffness produced in fabrics was observed.

The studies show that the stiffness of the fabric depends upon the penetrating and coating powers of the starch and that these factors in turn depend in a general way on the consistency of the pastes. Findings indicate that size of swollen starch granules bears a definite relation to penetrating and coating powers. Further evidence is given that the consistency of the paste depends on size of swollen granules.

•

Penetrating Agent Introduced

NAPHTHALENE sulphonic acid ester, a new penetrating agent developed by Onyx Oil & Chemical Co., Jersey City, is said to combine the action of a dispersing agent, emulsifier and colloidal film breaker in one product. It is stated also that it works equally well on animal, vegetable, and synthetic fibers.

This compound is particularly recommended for the dyeing operating agents to assure level shades on yarns, piece goods, hosiery, etc.

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Continuous Scouring of Piece Goods

A NEW machine for the continuous open-width scouring of cotton, rayon, and mixed piece-goods has been developed by Fielden & Co., Rochdale, England.

As described in *The Textile Manufacturer*, this machine is capable of production of over 3,000 yd. per hour.

The goods make three passages through the machine. The effect is to turn over the material at the second and third passages, and at the delivery end the goods pass out straight and in

open width. There is no tension on the material during the scouring.

The advantages claimed for the equipment are continuous running of the material in an open-width, slack state at a higher rate of production. The goods do not require threading through the machine. The machine is made in various widths.

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Propose Sulphonated Oil Standards

A PROPOSED commercial standard for grading sulphonated oils of saponifiable types has been submitted to the Sulphonated Oil Manufacturers' Association by the U. S. Bureau of Standards. Purpose is to provide a basis of understanding for guidance of producers, distributors and users.

The proposed standard gives definitions and states that strength shall be expressed as the sum of the percentages by weight of the following active ingredients: total fatty matter; total alkali bound as sodium soap, calculated as sodium; neutralized, organically combined sulphur. Methods of analysis to determine above are given.

•

Creases in Weighted Silk

COMPLAINTS over indelible creases in weighted silk fabrics have become increasingly numerous in the last few months. Since this defect is particularly noticeable in piece goods which have been put up in book fold, some converters are calling for fabrics rolled on tubes. Technicians have reached no agreement as to cause of this creasing, but several authorities lay it to use of excessive amounts of sodium silicate in weighting or to faulty methods of applying this compound.

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American I. G. Earnings

NET earnings of American I. G. Chemical Corp. for fiscal year ending Mar. 31, 1932, amounted to $1,718,397, compared with $2,322,952 for the previous year. This is equivalent to $2.18 on each share of common A stock and 22c. on each share of common B stock outstanding as compared with $2.95 and 39c. per share respectively for the year ending Mar. 31, 1931.

Total income during the fiscal year which ended last March amounted to $3,624,961 after net loss on sale of securities in the amount of $256,145 as against $4,252,987 in 1931. Net income after deducting expenses and taxes but before debenture interest amounted to $3,364,492 as compared with $3,969,066 in 1931. Interest on debentures amounted to $1,646,095 so that net income was approximately twice the requirements for debenture interest.

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Textile Chemists' Activities

THE summer meeting of the Piedmont Section, American Association of Textile Chemists and Colorists, will be held at Charlotte, N. C., July 16.

The annual outing of the New York Section, will be held at the Elmwood Country Club, East Paterson, N. J., on Thursday, June 23.

A sub-committee of the Research Committee has been recently appointed to consider the analysis and standardization of sulphonated oils. The personnel of this committee will be as follows: Ralph Hart, chairman, George P. Feindel, Stephen K. Ford, A. H. Grimshaw, R. A. Pingree, C. P. Gulick, Wm. Seltzer, W. T. Thomas, A. R. Thompson, Jr., and Walter S. Williams.

At the May meeting of the Northern New England Section in Cambridge, Mass., on May 7, Joseph W. Russell of the Otis Co. spoke on "Meeting the Changing Requirements of Fastness," and John N. Dalton on "Testing Cloth for Perspiration Fastness."

Ephraim Freedman, director of bureau of standards, R. H. Macy & Co., delivered a paper entitled "The Research Chemist Looks at Consumer Textiles," at the May meeting of the New York Section. Henry F. Herrmann, of the General Dyestuff Corp., was elected chairman of the section.

•

Test for Rayon Dyes

A TEST which makes it possible to classify arithmetically the whole range of direct colors according to their level dyeing properties on viscose was outlined by C. M. Whittacker recently before the Society of Dyers & Colorists in England. This procedure which displaces the original temperature-range test is based on the fact that if dyeings are made on 150/36 and 150/21 viscose respectively, by the temperature-range test, the results vary with each color; those colors which cover up irregularities in viscose easily are fullest on the 150/36 at low temperatures, and as the temperature rises, gradually change over to be fullest on the 150/21. The lower the temperature at which this change-over takes place the more easily are the irregularities of viscose covered.

Comparative tests show that at the outset the dyestuff invariably dyes on the 150/36 first, but that ultimately the 150/21 is dyed the fuller shade.

Carrying out the test at 90° C. with Icyl Orange G (the most easily levelling dyestuff on viscose) the 150/36 is heaviest after 5 seconds dyeing, but in 30 seconds 150/21 is the heavier.

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Finishing Activity Drops

THE rate of activity in the finishing industry showed a recession in May, both as compared with April and with May, 1931. Figures released by the National Association of Finishers of Textile Fabrics show printing at 52% of normal average capacity during May as compared with 73% in April and 62% in May, 1931. Similarly, white and dyed combined dropped from 46% in April to 38% in May, as compared with 54% for May, 1931. Data on blacks were: fast black, May 9%, April 12% and May, 1931, 18%; logwood or sulphur black, May 16%, April 23%, May, 1931, 34%.

•

Gray and Finished Stocks

THE number of cases of finished goods held in storage awaiting shipping orders was approximately the same at the end of April as at the end of March. The 30,736 total, however, was 1,914 cases less than at the end of April, 1931. On the other hand, the number of bales of gray goods in storage awaiting finishing orders rose from 18,578 at the end of March to 19,198 at the end of April. End of April, 1931, showed 16,496 bales in storage. Figures compiled by National Association of Finishers of Textile Fabrics and distributed by Textile Converters' Association.

Textile World Analyst

PROFIT POSSIBILITIES AT LOW EBB

General textile activity for the first five months of 1932, based on total fiber consumption, was 12% less than for the first five months of 1931 and 22% less than for the first five months of a normal year. In determining a normal year, month by month consumption figures for the period 1924-1931 were averaged.

▼ ▼ ▼

GROSS manufacturing margins, representing the spread between the prices which are paid for raw material and the prices received for the finished products, have been steadily narrowing during the last year and the opportunity for profitable operation has consequently decreased. What is even more to the point, however, is that margins were lower in May than in April and no sign of an upturn is in evidence at this time.

The April-May Comparison

April-May comparisons are of particular interest as it is possible here to disregard two factors that must be taken into account in long-range views. In other words, it is highly improbable that theoretical cost of manufacturing decreased perceptibly from April to May, or that plant activity increased. These two factors must be taken into consideration in any comparisons with 1931, but they will be found to balance one another in large measure. The lower theoretical costs of the present, achieved through plant economies and wage reductions, have not enhanced profit possibilities—even presupposing that gross margins remained the same—because the lower rate of activity, as compared with 1931, has not allowed theoretical costs to be approached as closely.

The one cheering phase of the situation is that the wide-spread curtailment planned for this summer should increase margins and that these margins may be held when business activity increases. The print cloth group affords an illustration of the effects of curtailment. In January conditions were poor and the margin between cotton (less waste) and the average price of a group of representative print cloths, was 12.1c. per lb. The curtailment measures put into effect at that time helped prices to such an extent that the margin increased to 13.9c. in April. Unfortunately, business decreased so markedly thereafter that the curtailment in effect was not sufficient and margin dropped to 11c. in May. Further curtailment at this time should have the effect of increasing this extremely low figure. Comparable margins in 1931 were 15.3c. in July and 12.3c. in October.

Combed broadcloths margins have shown a continuous decline since last October. The spread between raw cotton (less waste) and average fabric price was 20.2c. per lb. in May as compared with 21.6c. in March. Other margins are: July, 1931, 26.8c.; October, 1931, 30.1c.; January, 1932, 23.9c.

Combed Yarns Better Than Carded

Combed yarns have held their own considerably better than carded. The following figures show the spread between 1¼ in. hard western cotton, less waste, and 60/2 C.P. warps; also the spread between cotton and a group average for carded yarns:

Date	Combed, Cents	Carded, Cents
July, 1931	24	12.6
October, 1931	25	12.7
January, 1932	21	10.9
April, 1932	24	10.8
May, 1932	24	10

With the probability that May figures, when released, will show a record low for wool consumption it is not surprising to find little of cheer in the profit possibilities of this branch of the industry. It is distressing to find, however, that with the worsted industry operating at about 10 to 15% of capacity manufacturing margins are markedly less than those prevailing when operation was normal. With so many fabric variables, and with so many prices for similar fabrics, it is impossible to do more than give a general picture of margins on fabrics, but worsted yarns give an indication of the trend. The spread between clean wool and representative yarns has varied as follows:

	Cents		Cents
July, 1931	76	April, 1932	66
January, 1932	67	May, 1932	63

From all the indications, the textile industry has less chance of achieving profitable operation now than at any recent time, on the basis of straight figures. As pointed out, however, curtailment this summer should have a salutary effect and it is very probable that margins will increase before the summer is over.

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth
July 31, 1914	100	100	100	100	100	100	100
1925	193	193	177	221	226	222	234
1926	146	159	161	152	189	195	199	210
1927	130	146	153	147	179	184	186	195
1928	160	162	163	166	218	201	198	197
1929	158	163	156	168	182	184	193	198
1930	114	131	127	147	131	143	164	190
1931	75	97	99	121	102	114	134	165
1932								
Jan.	53	78	74	102	94	104	127	129
April	49	75	73	98	83	98	121	117
May	46	69	68	96	74	90	119	119

Date	Raw Silk Index: Raw Silk
July 31, 1914	100
1924-25 season	140
1925-26	172
1926-27	141
1927-28	126
1928-29	126
1929-30	104
1930-31	62
May, 1932	28
	...
	...

If a tailor were to spin, weave, cut and sew...

"Impossible," you'd say. "No tailor could make money if he worked from the raw wool to the finished suit of clothes."

Right. And yet, many weavers work in the same way when they spin their own yarn. In a few cases, it may pay the weaver to do so. But by and large it is unprofitable. On the surface, perhaps, you may get the yarn cheaper. When you go deeper and figure your overhead on the spinning, nine times out of ten you'll find that Quissett could supply you with yarn that is just as good, if not better, and at less cost.

And that is logical. Here is a huge mill, run by men whose life work is spinning, up-to-date in equipment, with management costs and overhead spread among hundreds of yarn users. When you spin your own yarn, you're directly saddled with all the spinning overhead. When you buy from Quissett, you pay only a tiny portion of the overhead, and you get the advantage of wise buying of raw cotton and skilled spinning management.

That is why, when you analyze your own spinning costs, you'll find it profitable to contract with Quissett for your yarn. Quality is high. Variety of yarns is endless. Delivery is fast and certain. Get in touch with Quissett.

Quissett Mill
New Bedford, Mass.
Wm. M. Butler, Pres.
Edward H. Cook, Treas.
Thomas F. Glennon, Agent

QUISSETT MEANS QUALITY

Our quotations based on
Cost + a reasonable profit.

QUISSETT
Cotton Yarns
AND
Quitex Spun Rayon

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call more and more on GOODYEAR

The growing popularity and use of cotton is of real interest to Goodyear. Itself one of the world's very largest users of cotton—for tires and mechanical rubber goods—Goodyear in turn offers its goods and services to meet the needs of cotton manufacturers.

Goodyear's experience in building more efficient, more economical equipment for textile mills is apparent in the special construction—and the special performance—of Goodyear Belts and Hose for cotton mill service.

Look at those two successful recent developments in Goodyear Belting—Goodyear COMPASS (Cord) Endless construction, and Goodyear THOR seamless construction. Practically stretchless, protected at the edges, capable of delivering full power throughout a long, long life of trouble-free wear, their very qualities are those most called for in textile service. Goodyear Hose for clean-up duty is another money saver.

An extra value—the PLUS that comes with the use of Goodyear Belts and Hose—is the expert service of the G.T.M.—Goodyear Technical Man. His friendly analysis of individual operating conditions—and his accurate specification of Goodyear Mechanical Rubber Goods to cotton mill duty have made money and saved money for many.

Have you ever discussed your belt and hose needs with the G.T.M.? It would pay you to do so. A line to Goodyear, Akron, Ohio, or Los Angeles, California, or to your nearest Goodyear Mechanical Rubber Goods Distributor will bring him.

TUNE IN: Goodyear invites you to hear the Revelers Quartet, Goodyear Concert-Dance Orchestra and a feature guest artist every Wednesday night, over N.B.C. Red Network, W E A F and Associated Stations

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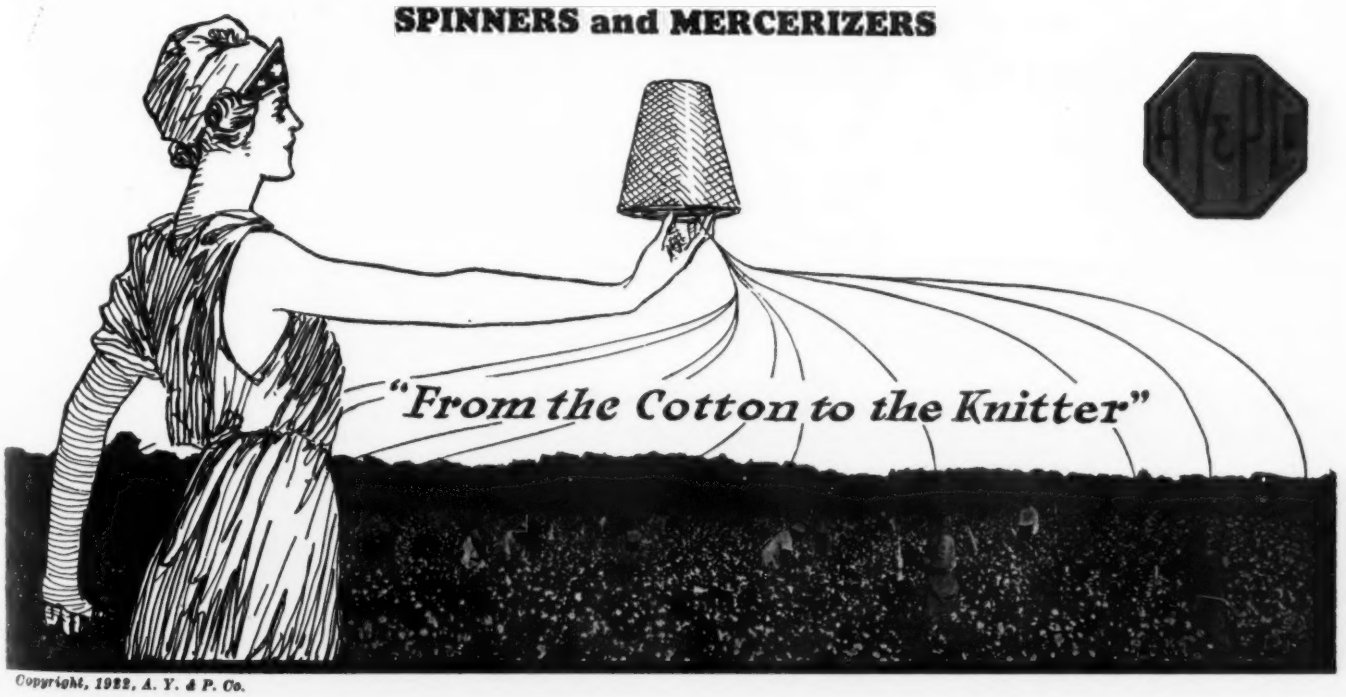

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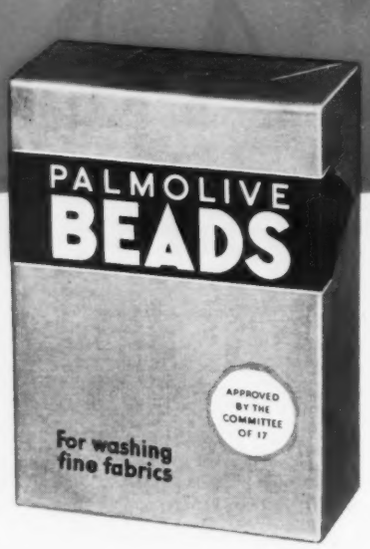
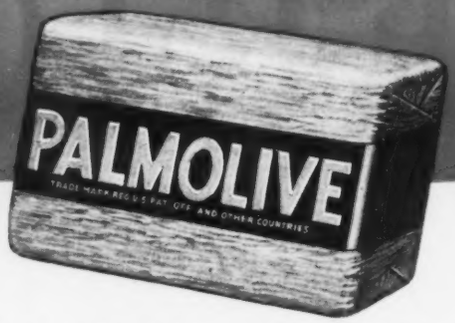
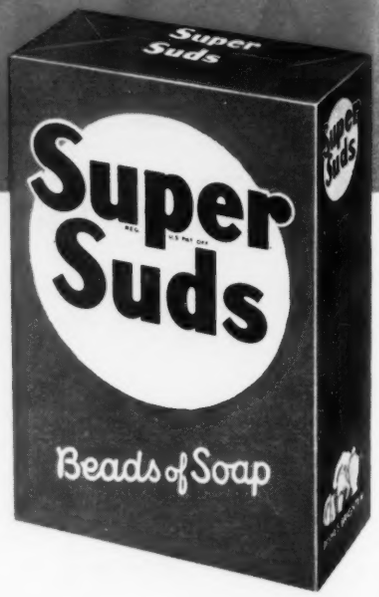






Palmolive Soap is by far the largest-selling toilet soap in the world. Over 20,000 beauty experts recommend its use.

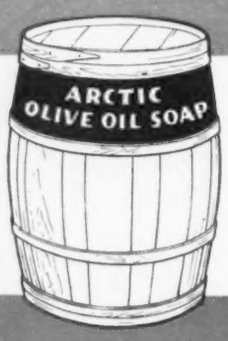
Palmolive Beads is being used by millions for the safe washing of fine fabrics. Recommended by leading silk manufacturers.

More than one-third of American women now use Super Suds, new bead soap sensation for faster, easier dishwashing.

OUTSTANDING QUALITY

The same strict standards of quality govern the making of these famous textile soaps

Texolive Kwiksolv
(*An Olive Oil Soap*)
Texolive Kwiksolv is an olive oil soap in spongy form. This product is without a peer and is a most unique form of powdered olive oil soap. Its solubility and direct action will surprise you. (Contains 92% real soap.)



Arctic Olive Oil Soap
(*Bar, Bulk, Chip*)
This item is produced from 100% olive oil foots to yield a mild, neutral soap. It rinses freely because of its low titre fat stock. Is especially valuable in processing silks, woolens, rayons and other fabrics requiring low temperature water.

Texolive (*Bar, Bulk, Chip or Granules*)
Texolive is an olive oil soap identical to Arctic Olive Oil Soap, except that it contains a small percentage of coconut oil, the coconut oil being added to produce additional sudsing qualities. Very efficient in cold water.

Colgate's Ribbon Dental Cream is known and used everywhere. For 30 years it has been the world's largest selling toothpaste.

Palmolive Shaving Cream is the favorite of more men than any other kind, the largest selling shaving cream in the world.

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Octagon Laundry Soap is the largest selling laundry and household soap in the Southern States and one of the largest in the east.

has made these products famous

The maker of these world famous products offer you textile soaps that guarantee quality work at low cost. The same careful preparation, the identical strict standards of quality which are responsible for the recognized world leadership of Colgate-Palmolive-Peet products is maintained in every batch of soap we ship to your plant.

Our scientifically prepared olive oil soaps—for years favored by the textile industry—are the result of more than 125 years of soapmaking experience. Results in textile plants throughout the country have proved they do their work better and quicker . . . that they assure the quality of finished goods week in and week out.

Why not give these quality soaps an opportunity to prove their merit in your plant? Write today for prices and a trial run. And you will want to mail the coupon for free bulletins which outline the application of our various industrial soap products.

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Arctic Crystal Flakes is our finest high-grade, all-tallow soap, approximately 42° titre, 88% plus real soap content. It produces high tension, elastic suds that work longer and better. A heavy duty soap that stands up—dissolves easily and quickly.

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The times demand that a searching glare of light be thrown on every item of mill cost. To most products a brilliant light is cruel, because it uncovers defects and waste invisible in the softer light of good times. Focus your spotlight on Climax Tubes. Make it as bright and as searching as you like. Climax Tubes are not afraid. Because all you can discover is a product of such strength, accuracy and dependability that you can make but one decision — economical! Spiral wound tubes, parallel tubes, cloth rolls, cop tubes. ***Send for free samples.***

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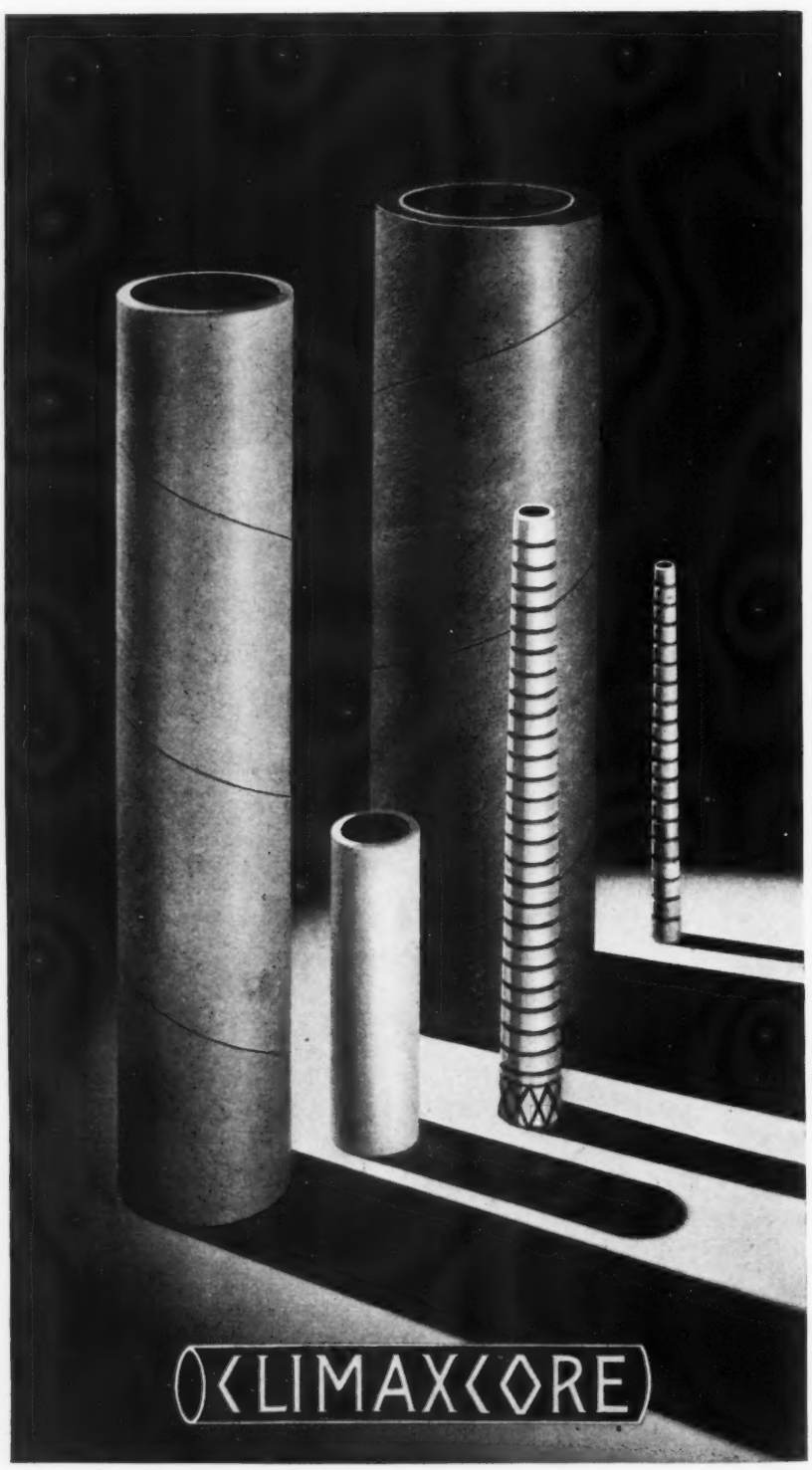

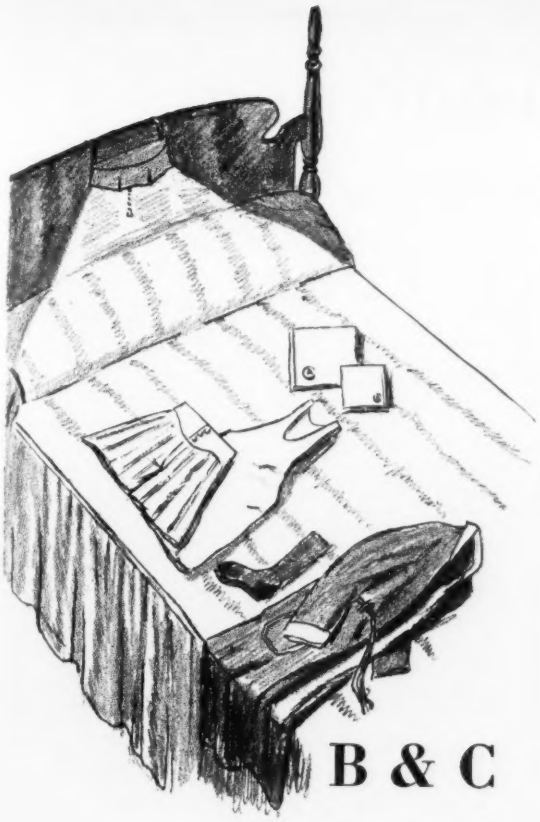

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Ragan Yarns, ranging from 40's to 80's in either single or ply and in any twist desired, are particularly adapted to the requirements of lace manufacturers, wire insulators, mercerizers, knitters and weavers, and are sold direct or through brokers in warps, skeins, cones or tubes.

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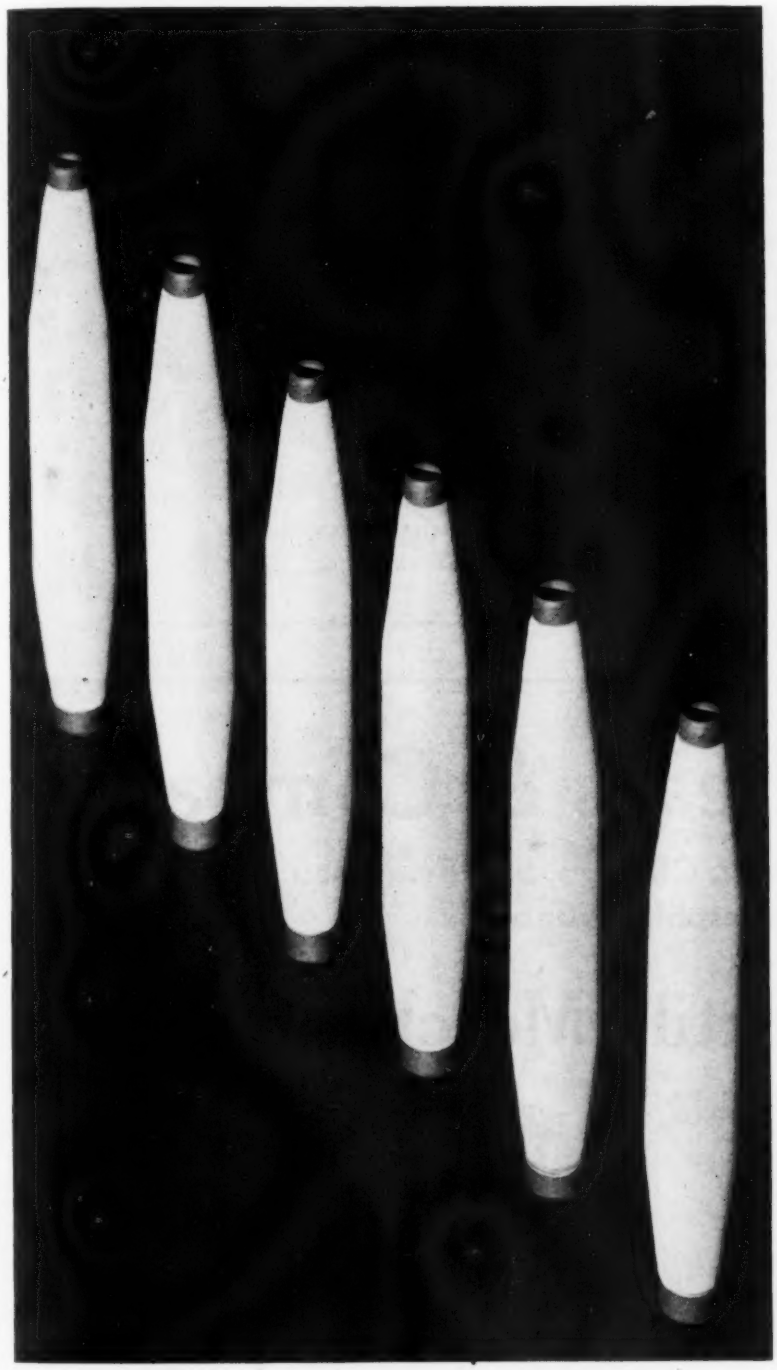
a new **CHALK** *luster...in the fiber itself, without weighting or loading*



LEADING designers asked the Eastman Laboratories for a chalk yarn—a pure white, a matte effect, a soft and supple hand.

And with all they demanded a natural—unloaded—unweighted dull acetate of superior strength and uniformity.

Their specifications have been met in the new Eastman Dull Luster Yarn. American designers now have available an *absolutely new type of dull acetate yarn*—a raw material with which to interpret the demand for woven and knitted fabrics in matte effects.

Eastman Dull Luster Yarn is free from weighting, loading, or adulteration of any kind. Its pure white matte appearance is not due to any mineral pigment or other foreign matter, but is inherent in the fiber itself.

Eastman Dull Luster Yarn dyes evenly in dark or light colors. It is held to the strictest standards of uniformity in every property. The result is a noticeably better quality in the finished fabrics, as well as unusual ease of handling in the mill.

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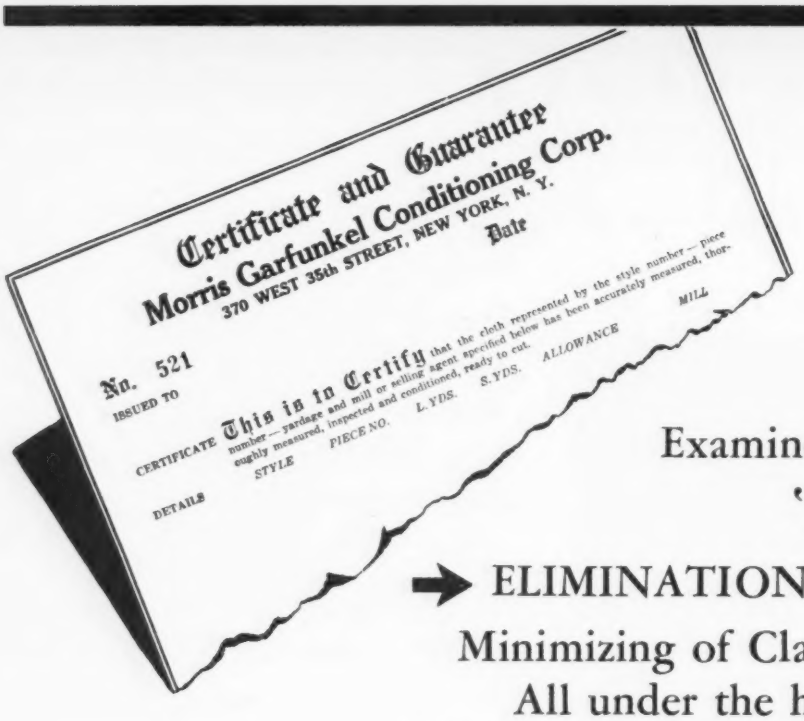
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Date
No. 521
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Examined—Strung and Preshrunk

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Langdale Mill, Langdale, Ala.
Riverdale Mill, Riverview, Ala.
Shawmut Mill, Shawmut, Ala.
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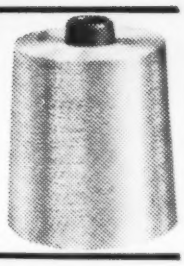
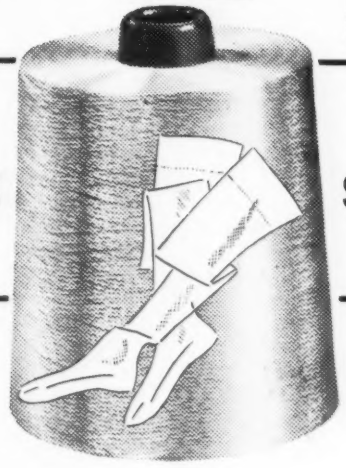
Where dull lustre must last-



that's where CHARDONIZE shines



It is versatile Chardonize dull lustre yarn that's giving so much of the new knitwear its subtlety of bloom. That is because Chardonize is made by an exclusive, controlled process. This process renders Chardonize lustre *permanently dull*. No amount of washing, cleaning or wearing can affect either its low, rich dullness or its soft, suede feel. Merchants and manufacturers everywhere who realize that repeat sales and good will must be built up for them by the merchandise they sell *after they sell it* are wisely counting on Chardonize this season.

It's in the yarn

TUBIZE·CHATILLON CORPORATION

2 PARK AVENUE · NEW YORK

MAKERS OF VISCOSE, NITROCELLULOSE AND ACETATE YARNS

Tubize BRAND

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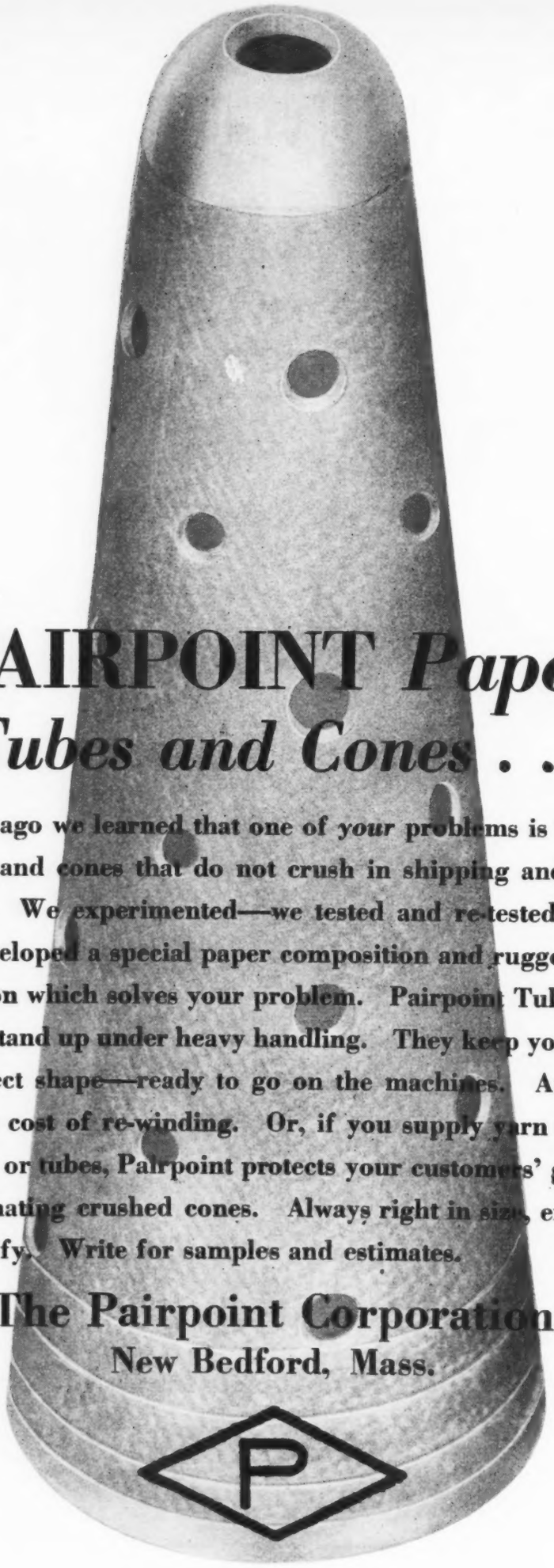


PAIRPOINT *Paper Tubes and Cones . . .*

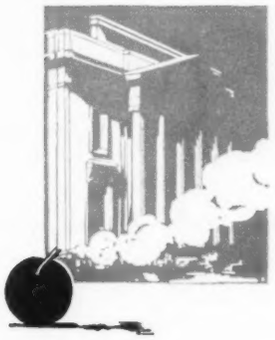
Long ago we learned that one of *your* problems is to get tubes and cones that do not crush in shipping and handling. We experimented—we tested and re-tested—and we developed a special paper composition and rugged construction which solves your problem. Pairpoint Tubes and Cones stand up under heavy handling. They keep your yarn in perfect shape—ready to go on the machines. And they save the cost of re-winding. Or, if you supply yarn to mills on cones or tubes, Pairpoint protects your customers' goodwill by eliminating crushed cones. Always right in size, exactly as you specify. Write for samples and estimates.

The Pairpoint Corporation

New Bedford, Mass.

Kaumagraph protects your product and identity

WHERE DO YOU STAND IN THIS CHEAPNESS BATTLE



HOSTS of hosiery and underwear manufacturers are engaged in a bewildering battle to beat prices that only cheapness can create. Gone is a sense of value! Gone are the standards of quality that have taken years to create! Gone is that courage to maintain honest, serviceable merchandise that returns a fair profit to seller and buyer!

Cheapness is neither economy nor thrift; cheapness tears down—it destroys the morale of selling and buying—it threatens the American ideal of civilization. Now is the time to quit the fruitless fight in which all combatants must be losers! Rally to the old standards of quality; don't let the price hounds batter down the business structure, the prestige and pride you've taken years to build up.

And, let Kaumagraph help! Good merchandise won't show its value with cheap, poorly designed transfers and packing that suggest cheapness. "K. D. T.'s" add value to hosiery and underwear—yet they are more economical than the cheap transfers you may have been tempted to buy in the cheapness battle. Future reputation depends on the stand you take now.

Kaumagraph protects product package identity

KAUMAGRAPH COMPANY

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PARIS, ONT.
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PARIS, FRANCE
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ARLINGTON MILLS
Lawrence, Mass.
Bradford Spun Worsted Yarns

ACADIA MILLS
Lawrence, Mass.
Mercerized & Cotton-Merino Yarns

NONQUITT MILLS
New Bedford, Mass.
Cotton & Spun Rayon Yarns

CRAMERTON MILLS
Cramerton, N. C.
Fine Combed Cotton Yarns

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High Quality Carded Yarns

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HEVEATEX is a rubber compound. Once applied, it withstands scouring, boiling or dyeing. It can be applied in any of the usual methods of water solution. You don't need high temperatures. You don't need special equipment. For example, one mill man is doing a brisk business on cotton cloth, made in his own mill, filled and waterproofed with HEVEATEX. Another has built an acceptance for his rugs by using as a non-skid underlay an ordinary fabric treated with HEVEATEX. Still another mill man makes waterproof double-texture fabrics by joining two fabrics with HEVEATEX. All with the equipment found in any finishing department.

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There are two ways in which the use of Wyandotte Textile Alkalies show you extra profits.

First — in increased processing efficiency. The uniformity of Wyandotte makes it possible at all times to know exactly what results you will obtain.

Second — in higher quality finished products. Wyandotte Textile Alkalies have been especially made to process textiles with the utmost efficiency and without damaging textile fibres.

Order from your Supply Man
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Quality and Service
Textile Alkalies

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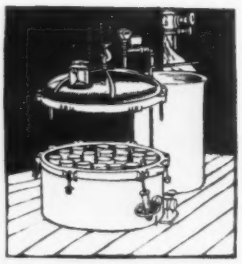
WYANDOTTE, MICHIGAN

LYKOPON*



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Ralph E. Loper Co.
INDUSTRIAL ENGINEERS
Specialists in Textile Cost Methods Over 19 Years
FALL RIVER, MASS. GREENVILLE, S. C.

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GLOBE has been attracting the steadfast patronage of mill men since the 1860's. And not without reason. For the changing textile picture always finds Globe keeping step. Just within the last year, we have added rayon to the list of yarns we process. Simply in order to better serve our customers in this era of diversified yarn needs. Our whole layout is attuned to present-day requirements.

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Deliveries are important. A thoroughly competent personnel works on a precise schedule at Globe. You can depend on our holding to the course and meeting the most rigid time requirements. A trial order will show you what to expect. *Let's get together.*

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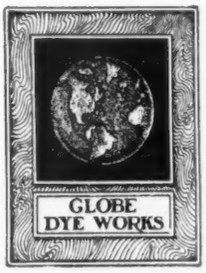
Dyers, Bleachers and Mercerizers of Cotton Skein Yarn and Warps.

Dyers of Rayon, Spun Rayon, Linen, Ramie and Jute Yarns.



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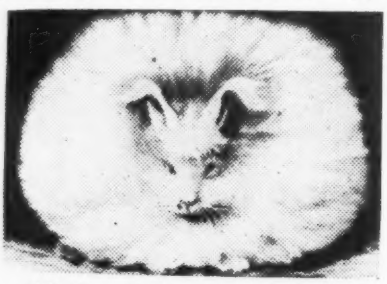

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All varieties Stock and Skein Dyed

For the Knitting Trade

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WOOLEN GOODS and WORSTED YARNS

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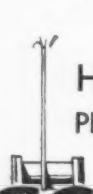
UNIFORM PRODUCTS MEAN UNIFORM COSTS

BUY YARNS AND TEXTILES TO SCOTT TEST!

Arguments may be empty words and the man with the strongest voice and the weakest side may win. Scott Testing Machines settle arguments—dispel doubt. Their "say-so" is final and leaves no room for argument. Uniformity in finished product depends upon uniformity in raw material. Accurate tests to establish standards make for uniformity.



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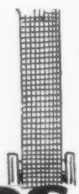

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Worsted Yarns

for Weaving and Knitting

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FINISH . . . just that!
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SPECIALTIES? . . yes . . and custom-made to forecast an impending mode . . but always *finish* . . in all that peerless finish means to all the trade.

And, while events in fabric history here devised, may trace onward from our novel treatments, suffice it that this service stand as one of sterling quality . . that this Seal constitute a traditional mark of unstinted value.

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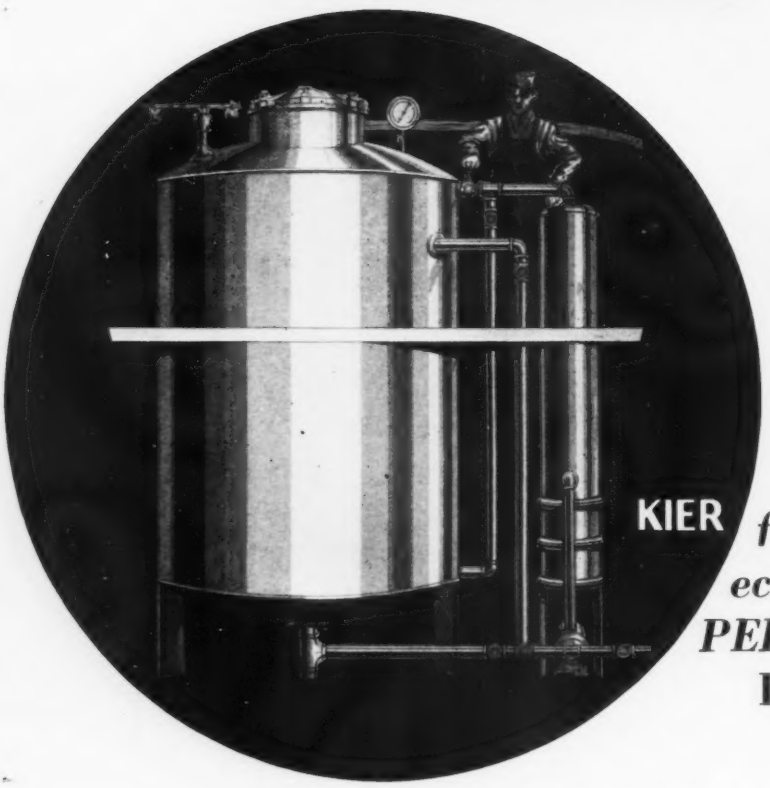
We require the registration of designs with the Textile Design Registration Bureau.

3 R&H WAYS TO B

R&H ALBONE C
100 VOLUME HYDROGEN PEROXIDE



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SODIUM PERBORATE

for highest economies in PEROXIDE BLEACHING-- R & H CIRCULATION KIERS*

The DUOFLO and TRIPLFLO Circulation Kiers, both R & H developments, are designed to give a quick circulation of bleach liquor and rapid and thorough penetration of fibers. Any of these R & H Peroxides—ALBONE C, SOLOZONE or R & H SODIUM PERBORATE, when used in the Circulation Kiers, provide the simplest of peroxide bleaching systems with direct economies in time, labor, fuel, and water costs.

**Patented*

costs! no more!

BETTER BLEACHING

1 ***With*** **ALBONE* C**—100 Vol. Electrolytic Hydrogen Peroxide, 13% available oxygen. All kinds of textile fabrics—cotton, wool, silk and the new synthetic fibers such as rayon and other cellulose derivatives, are perfectly bleached by ALBONE C. Bleached to a clear, permanent white. Softness and elasticity retained. Fewer resists. Fibers of full strength. No damaged goods.

These are dependable characteristics of ALBONE C bleached goods—dependable because the purity, full strength and high quality of ALBONE C are constant, unvarying features, made possible only by the careful and controlled methods of manufacture employed by R & H.

2 ***With*** **R & H SOLOZONE***—Sodium Peroxide—for those who prefer a powdered peroxide to the liquid ALBONE C. SOLOZONE contains 20% available active oxygen and is the cheapest form of peroxide available for bleaching purposes. It is successfully used for all types of bleaching but principally for the bleaching of vegetable fibers such as linen and cotton where an alkaline bath is desirable. SOLOZONE, also, produces a permanent white. Does not weaken the fabric. Leaves no odor. And preserves the natural lustre, strength and elasticity of materials.

R&H SODIUM PERBORATE

3 ***With*** **R&H SODIUM PERBORATE** 9.5—10.0% available active oxygen. This product is used in special cases where the presence of borax in the bleach bath is desired. For the fixation of vat colors on cotton, silk and rayon, the simple treatment with SODIUM PERBORATE is now the preferred method. It has displaced older oxidation methods because of the greater brilliancy and permanency of the colors, produced by the mild, alkaline, oxidizing action of the Perborate bath.

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Write for information and literature about R & H Peroxides and R & H Kiers. Simply fill in the coupon and mail.

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Please send information on R & H PEROXIDES and the R & H System of Peroxide Bleaching to:

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New Raw Materials *expand the fields of* TEXTILE FABRICATION *and* FINISHING

These aqueous dispersions of rubber have aroused the textile industry to the production of new types of fabrics and to give new uses to old fabrics.

Latex is the natural liquid rubber that flows from the tree. By subsequent chemical processes Lotol is produced. Dispersite is crude or reclaimed rubber compounds dispersed in a water medium.

The textile man's interest in these new materials is intensified by the fact that they can be applied with the standard textile finishing equipment and used to produce new effects for developing additional outlets.

An article published in Textile World, March 19, 1932, describes the results of our cooperation in the development of pile fabrics, seemingly seamless carpets, unwoven carpets, etc.

We welcome your inquiries.

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Subsidiary of
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To their great surprise

Softening 2-grain water Saved them Money

In a North Carolina town, a new reservoir was opened, covering 200 acres of woodland. Rotting vegetation put tannin into the water supply, which caused a near-by hosiery manufacturer a lot of trouble in bleaching. Permutit equipment, of course, was installed to remove the tannin—and, at the same time, to soften the water. As there were only 2 grains of hardness present, the manufacturer did not anticipate that softening it would be of much benefit.

Great was their surprise, however, when they discovered the very real benefits that removing every last bit of hardness brought them. As they wrote us:

"Our prime reason for installing this system was for correcting water to make suitable for chlorine bleaching process used in connection with cotton hosiery. Our water supply showed an average of less than 2° hardness, which we did not consider seriously objectionable. But after installing the Permutit System, we found that it not only corrected the trouble we were having with our chlorine bleaching, but also we were able to reduce soaps and soluble oils used in the process of dyeing and finishing anywhere from 25% to 50%, depending on the different operations. We found greatest saving in soap and scouring processes, which were reduced 50%.

"Naturally, our goods were given a better feel and finish, and we would say that the marketability has been greatly improved by the use of soft water and the use of less soaps and oils.

"In addition to the above benefits, we have found that our boilers have been absolutely freed from scale and corrosion and all trouble of interior cleaning of boilers has been entirely eliminated."

Don't overlook a chance to make savings and improvements like these in your own mill! We shall be glad to analyze your mill water free of charge, and show you how water treatment will pay you dividends.

A very interesting booklet, "Reducing Textile Costs and Troubles," is yours, without obligation. Write for a copy.

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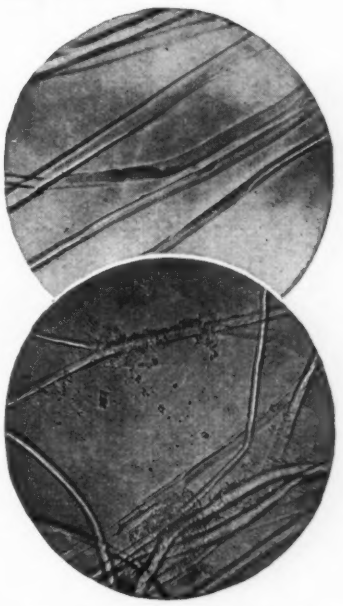
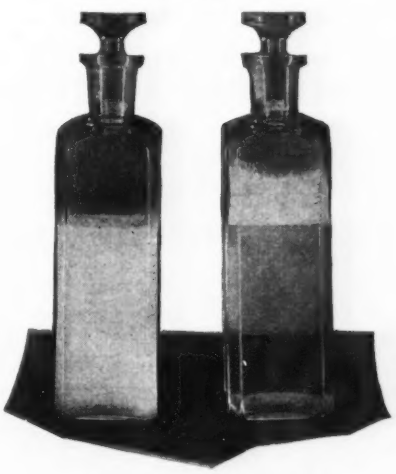
440 Fourth Avenue, New York, N. Y.

Manufacturers of Industrial and Household Zeolite Water Softeners—Hot and Cold Lime Soda, Lime-Barium Water Softeners. Sand Filters. Iron, Oil and Manganese Removing Filters. Continuous Boiler Blowoff Equipment. Ranarex CO_2 Indicators and Recorders. Other Power Plant and Water Treating Specialties.



Silk Fibres—highly magnified. Top, processed in Soft Water; lower picture, processed in Hard Water.



TRY THIS SIMPLE TEST

Add a few chips of good soap to a bottle of water. Shake it up, and look at the water under the suds. If it is cloudy, the water may cause trouble in textile processing.

Permutit *Water Treating Equipment*

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● We've never yet seen a textile soap that would perform miracles. We've never yet seen one that would transform losses into profits over night.

● But we've seen Olate Flakes produce superior wet finishing results and at the same time cut production costs. We have seen this happen in some of the most efficiently operated textile mills in this country. And that, you'll agree, is pretty close to a miracle.

● Olate accomplishes these unusual results because it is an unusual soap. Olate has a lower titer than any other flaked textile soap. It dissolves faster, which means a saving in labor costs. You can prepare an Olate fulling solution in 20 to 30 minutes instead of the usual 3 or 4 hours required for solid soaps.

● More convenient, too. Solutions containing as much as 16 ounces of Olate per gallon stay liquid enough at ordinary temperatures to be poured. There is no jelly to break up. Your Olate solution can be measured easily and accurately by pailfuls or piped direct to the mills and washers.

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● Check Olate's efficiency, safety and economy with a test run in your plant. That's how users of Olate have become its biggest boosters.

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● *GOOD SOAP IS GOOD BUSINESS*

The 1932 Fade-Ometer

a real step forward in predetermining the light fastness of colors

The new type FDA embodies all the characteristics which have secured world wide acceptance for the Fade-Ometer during the past fourteen years; also a number of new features, including:

An aluminum shell, which encloses the samples
A water reservoir of polished copper
Two four point adjusting switches, which give better voltage control
An ammeter
A voltmeter
A circuit breaker, for protection
An electric fan, placed below the specimen chamber
An improved humidifier

The metal holders enclosing the specimens are suspended from a 20 inch ring which surrounds the arc. The cone shaped aluminum shell, hinged at six points, surrounds the specimens, which are not subject to overheating.

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Close control of such factors as amperage, temperature and humidity greatly increases the value of the Fade-Ometer.

Type FDA is the latest and highest development in equipment for predetermining the light fastness of colors and colored materials; including textiles, dyestuffs, paper, wallpaper and printing and lithographic inks.

Get the complete story of the FDA Fade-Ometer. Write for Bulletin TW-11.

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Get a clean bright white in bleaching cotton

NO FADED whites or yellows when you use the B & L method of bleaching cotton. Because, with B & L Bleaching Oil you use a minimum of the chemicals which are known to harm the fiber, and you do not use any soap in connection with the bleaching process. The result is clean, pure white fibers that hold all their natural softness and strength. And not only do you improve the bleach, but you save considerably in doing so. The B & L method saves one-quarter to one-half the time and steam required, it saves most, if not all of the caustic, 25% of the chloride of lime, 25% of anti-chlorine or acid, and all the soap. Proof? — yes, ample proof, right in your own plant. Trial lot subject to approval — Write.

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Para Soap Oil
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Pentrolyn, a superior assistant for beam, spool, bobbin and package dyeing.

Bleach Softener CSO, Finishing Sizings and Softeners.

Victrolyn, a penetrating, lubricating and economical assistant in warp sizing.

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A 68-page book, strongly bound, containing information on the use of chemicals in Bleaching, Dyeing, Finishing and Printing is free to executives who will write on their letterhead.

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For SATISFACTORY TEXTILE OPERATIONS

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Muriatic Acid
Nitric Acid
Oxalic Acid
Phosphate of Soda
Silicate of Soda
Sulphate of Alumina
Sulphate of Soda, Anhydrous
Sulphite of Soda
Sulphide of Soda
Sulphuric Acid
Tri-Sodium Phosphate

THE GRASSELLI CHEMICAL COMPANY
CLEVELAND INCORPORATED OHIO

New York Office and Export Office: 350 Fifth Avenue

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Albany, Birmingham, Boston, Charlotte, Chicago, Cincinnati, Detroit, Milwaukee, New Haven, New Orleans, Philadelphia, Pittsburgh, St. Louis, St. Paul

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Represented in Canada by CANADIAN INDUSTRIES, LTD., Heavy Chemicals Division—Montreal and Toronto

Slight change in boil-off formula cuts redyes 80%!

OIL spots and varying water hardness caused one mill considerable trouble on their rayon and mercerized women's hose production. Different oils and soaps were tried at different strengths, but oil spots persisted; dyes were uneven.

By making Oakite a part of the boiling-off formula, the hose now comes through without the spotting and with shades perfectly matched. And . . . actual processing costs are no higher than they were before.

For all wet finishing operations before dyeing, Oakite provides the extra detergent action and the improved penetrating power that assure truer, more level colors.

Whether you process wool, cotton, rayon or silk, the 24 years' experience of Oakite Service Men helping textile mills improve quality and keep costs low, can be of definite benefit to you. You incur no obligation in taking advantage of this experience. Write today and get the helpful suggestions our nearly representative can offer on your specific work.

Oakite Service Men, cleaning specialists, are located in the leading industrial centers of the United States and Canada

Manufactured only by
OAKITE PRODUCTS, INC., 42 Thames St., NEW YORK

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TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods

ROME SOAP MFG. CO.

MANUFACTURERS OF

Textile, Laundry

and

Special Soaps

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WRITE US FOR SAMPLES AND QUOTATIONS

ROME — — New York

VICTOR FORMIC ACID

AN AMERICAN made product of highest purity — the result of careful chemical control in the process of manufacturing. Uniformly water-white in color. Shipped in strong durable domestic carboys containing 120 pounds each.

Write for sample and quotations from nearest stock

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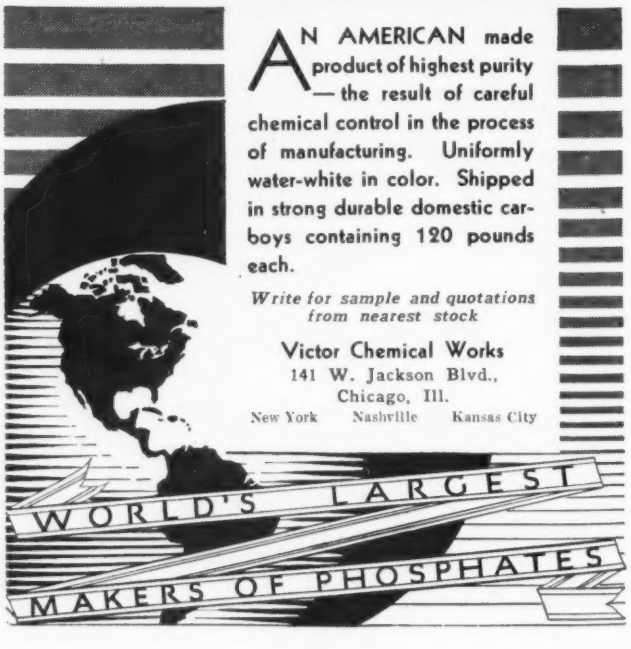

PERFECTED!

THE IDEAL PRINTING GUM

SUPERTEX
The pure (clear and colorless) printing gum

ORDINARY GUM
Turbid, dark-colored printing gum

YOU'LL GET FULL COLOR VALUES WITH

Supertex

(PATENT PENDING)

THE SUPERIOR TEXTILE GUM

• Supertex is the first scientifically processed textile printing thickener. It is entirely free from all bark extract which discolors printing gums, and free from all insoluble particles that result in "fuzzy" prints and often cause certain colors to work stringy or ropy.

Supertex is unexcelled for vat dyeing. It retains its syrupy body and does not "curdle" when caustic soda is added.

SUPERTEX Advantages

•

1. Practically colorless
2. Sparkling clear
3. Free from impurities
4. Smooth-working, syrupy body
5. Clear, sharp prints
6. Penetrates deeply
7. Full, bright shades
8. Saves dyestuffs
9. Washes out perfectly

Strike off a print of Supertex —dry, steam and wash. Compare with any ordinary printing gum you have been accustomed to use. Notice the full bright colors and sharp prints. You can rely upon Supertex for your most exacting printing work.

JACQUES WOLF & CO.

Manufacturing Chemists and Importers

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Warehouses: **Providence, R. I. • Philadelphia, Pa. • Utica, N. Y. • Chicago, Ill. • Greenville, S. C. • Chattanooga, Tenn**

"Do One Thing . . . And Do It Well"

The superlative surgeon is . . . must be . . . a specialist. Quite naturally, we all place our greatest trust in those whose every power and resource is bent to one great single purpose.

Our purpose . . . our one and only product . . . is Liquid Chlorine, the manufacture of which we pioneered. Quite naturally, when you want this chemical, you turn in confidence to EBG.

Look for the RED Cylinder

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Pioneer Manufacturers of Liquid Chlorine

Main Office: 9 E. 41st St., New York, N. Y.

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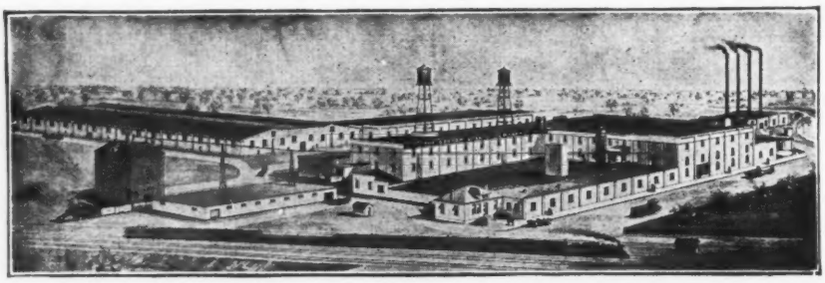
EBG

Liquid Chlorine



VICTOR MILL STARCH

The Weaver's Friend

It boils thin—it penetrates the warps—increases breaking strength and carries the weight into the cloth. Being thoroughly washed free from gluten and other foreign matter, it gives a bleach and finish to the goods that you can get from no other starch.

A trial order will convince you that VICTOR STARCH has no equal on the market. It means satisfied help and 100% production.

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Columbus, Ohio

Southern Agent: DANIEL H. WALLACE, Greenville, S. C.

C. B. ILER, Greenville, S. C. L. J. CASTILE, Charlotte, N. C.

WILL DYE
ALL
RAYON FABRICS
ELIMINATING
BAR EFFECTS

GDC

GENERAL DYESTUFF CORPORATION
230 Fifth Avenue **New York, N.Y.**

The 10 smartest BLANKET COLORS this year
CHATHAM 100% ALL WOOL BL
Warmth • Beauty • Value
AN opportunity that will delight any modern woman: Exquisite, pure wool Chatham blankets . . . handsomely bound with matching silk ribbon . . . in just those smart, new colors which can be worked into all your bedroom decorative schemes. Not in a decade have blankets of this outstanding quality been sold at such a low price.
Of course they're 100% wool—and you know what Chatham all-wool blankets are! Feel the enclosed swatch! Isn't it beautifully soft? And its nap is so luxuriously deep! Each of the lovely colors is as effectively delicate as the attached sample.
Send in your order today. It will be filled promptly. And make your first order complete. Our supply is limited and you can't get this blanket at any other store. The price and the blanket are exclusive with us.
SIZE: 72 x 84 inches, a twin and full bed size
WEIGHT: 3 pounds of fluffy warm wool
CONSTRUCTION: All-Wool Pre-Shrunk, Color-Fast
BOUND: In matching silk ribbons
BOXED: In attractive dust-proof boxes
These are the SMART NEW COLORS
ROSE
BLUE
HELIO
GREEN
GOLD
PEACH
BEIGE
MAHOGANY
PEACOCK
FUCHSIA
COLONIAL BLUE
REDWOOD
HARVEST ORANGE
CHATHAM Blank

CHATHAM *uses advertising*

MORE money was spent in 1931 to advertise Chatham blankets than in any previous year. And Chatham dollar sales were the highest in history—in spite of the fact that blanket prices generally were 25% lower in 1931.

Naturally, advertising did not do the whole job. Styling the product to meet current preferences was a factor. The appearance and utility of the Chatham package were improved. Test patterns and colors were submitted to housewives and style authorities. Every Chatham executive and salesman did actual sales work behind the counters of retail stores—to get closer to consumers' tastes and buying habits.

Then the selling began. Full page advertisements were run in the leading women's magazines and the journals reaching the trade. Direct mail advertisements were released to shoppers through the mailing lists of retail stores. Intelligent management, intelligent merchandising and intelligent advertising worked in a period when most business men claimed there was "no business to get."

Men who use advertising themselves are alert to YOUR advertising

You won't find many manufacturers today that are doing a more intelligent job of styling and selling than is being done by manufacturers of textile products. The whole textile industry is on its toes—selling as it's never sold before—using more advertising—selling more goods. More power to them!

There could not be a more auspicious time for manufacturers of textile machinery, equipment and supplies to apply the same strategy and aggressiveness. When your customer demonstrates by his own increased business that advertising is effective is it good strategy to indicate that you don't believe him? And that is virtually the position of the man who tries to sell to textile mills without the support and sales-blazing help of advertising.

Regular advertising in Textile World can create the desire for modern textile machinery just as advertising in other magazines creates the desire for modern blankets, stylish hosiery, modish linens and silks, and comfortable Palm Beach suits. It's simply a matter of starting and keeping at it.

Ask a Textile World representative to go over your prospect list and see how it compares with the prospects that can be enumerated in our circulation records. Let him explain how for a fraction of a cent a call you can keep in touch constantly with every worthwhile textile mill. Then, if you desire, he will help you create and schedule the kind of a promotion program that will ring the bell.

TEXTILE WORLD

Solve Your Soap Problems With ARMOUR'S Textile Soaps!

Uniform quality and super-excellence of Armour's Textile Soaps are not accidental! Choice selected raw materials — proven, tested manufacturing processes—and strict laboratory control, combine to produce a product of unusual merit.

What more could you desire—unless it were positive assurance of immediate and efficient delivery service? Armour and Company's 400 branches, covering every section of the entire country, are your guarantee of prompt delivery from a convenient source of supply.

Armour and Company maintain a complete and practical chemical Research Department that is at all times at the call of Textile Mills for rendering advice and suggestions. Skilled chemists whose life work has been the study of soap and of textile methods—field men always ready to assist with products. Just a note will bring this service to you.

Flint Shredded Chips	Blended Palm Solid
Neutral Olive Chips	Red Oil Soap
Industrial Chips	Neutral Olive Powder
Topaz Chips	Olive Oil Solid
Pure Palm Chips	Olive Oil Bars
Pure Palm Solid	Olive Fig Soap

Write for samples and full particulars.

ARMOUR AND COMPANY
INDUSTRIAL SOAP DEPARTMENT
1355 W. 31st St. Chicago, Ill.

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TRADE MARK REG. U. S. PAT. OFF

76% CAUSTIC SODA

SOLID • GROUND FLAKE

Uniformly High Quality

Particularly Effective in Mercerizing Operations

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Ask for our descriptive leaflet

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

61 BROADWAY, NEW YORK

MONEL METAL DYE TANKS

insure clear colors...
protect fine fabrics...
speed up production

Typical light gauge, lock-seamed and silver soldered Monel Metal dye tank linings for wood, concrete or metal tanks.

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Heavy gauge, self-supporting welded Monel Metal dye tanks.

● The constant search for improvement...for better, more economical methods of textile dyeing...is reflected in the rapidly increasing use of Monel Metal for dye tank linings. The rare properties which have made Monel Metal the standard material for dye tank construction can be summarized for easy reading as follows:

1. Resistance to action of practically all chemicals used in dyeing cotton, silk and rayon.
2. Freedom from danger of rust and other metal stains.
3. Smooth, glass-like surface safeguards the most delicate fabrics against injury.
4. Monel Metal has no harmful effect on dye shades commonly used.
5. Ready cleanability permits frequent change of batches and efficient use of floor space.
6. Permits different operations to be carried out in the same machine: Light colors can follow dark colors: Certain types of bleaching, degumming, washing and stripping can all be done in the same Monel Metal equipment.
7. Long life of Monel Metal linings proved by hundreds of installations in all types of dye house service.

Heavy gauge, welded Monel Metal construction is recommended for large, self-supporting dye tanks. For small tanks and vats, light gauge, lock-seamed, silver soldered Monel Metal linings provide adequate strength and durability. Both heavy and light gauge Monel Metal linings can be readily built to your individual dyehouse requirements by your regular fabricator. Consult him—and write for a copy of the new "Illustrated Buyers Guide and Catalog of Monel Metal Textile Equipment".

Write today for your copy of this useful buyers' guide. You'll find it extremely helpful in planning dyehouse equipment installations. It also contains names and addresses of fabricators who can supply you with Monel Metal equipment.

INCO MONEL METAL

A HIGH NICKEL ALLOY
MONEL METAL
NICKEL ALLOYS PERFORM BETTER LONGER

Monel Metal is a registered trade mark applied to an alloy containing approximately two-thirds nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

It Stamps . . . PERFECTION *in Summer Fabrics*

Soft, light, delicately hued fabrics! That's the consumer demand for summer. And to achieve this perfection of quality, your materials must be perfectly sized, desized and dyed.

DIASTAFOR will give this perfection, because it strips starch content from cottons, mixed goods and rayon without injuring delicate fibres and insures ideal dyeing and bleaching. No expensive machinery or change in plant set-up necessary. Let our technical man advise you, or write to —

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Diastafor Department

STANDARD BRANDS INCORPORATED

595 Madison Avenue New York, N. Y.

LIGHTNIN PORTABLE MIXERS

Increase Production, Improve Quality AT LESS COST

YOUR MIXING DEPARTMENT CAN INCREASE YOUR PROFITS. DO NOT NEGLECT IT.

We solicit your use of our Engineering Department and will gladly demonstrate under your actual working conditions.

ALL SIZES FROM THE LABORATORY TO THE LARGEST INDUSTRIAL FLUID MIXING PROCESS.

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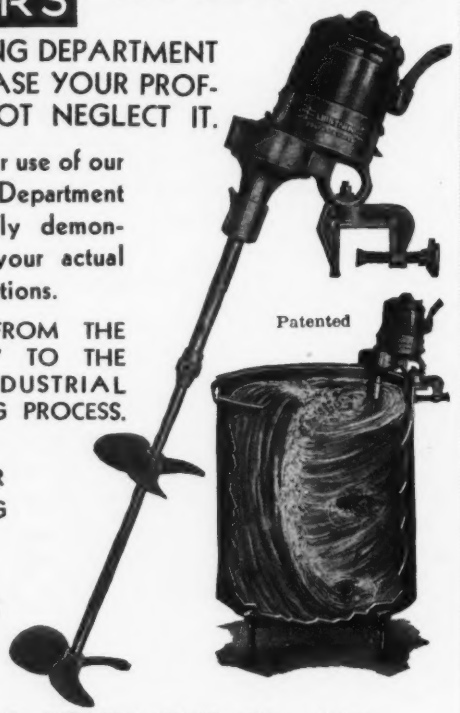
MIXERS
AGITATORS
TANKS
KETTLES



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Originators and Largest Manufacturers of Electric Portable Mixers

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NEW YORK, N. Y. CHICAGO, ILL.

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SOAPS

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SULPHONATED OILS

RAYON and SILK OILS

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Scholler Brothers, Inc.

Amber and Westmoreland Sts.

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In U. S. Since 1907

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Specialists in MONEL METAL for the Textile Industry

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All Soluble Sulphonated and Emulsifiable Oils and their Products

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Specialists in specific formulae to meet exact requirements.

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Ask for a NOPCO Technical Man

NATIONAL OIL PRODUCTS CO.

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HARRISON, N. J.

San Francisco
Hamburg, Germany

Women ARE influenced by smell, in buying. We wanted to know, so we asked them—250 of them—to tell us which of several stockings was the best quality.

It happens the stockings were *identical* in quality!

But stocking No. 2 had a TEX-O-DOR in the finishing oil. And 50% of the women picked *this* stocking as the better one.

They didn't know why; but we do. It was the pleasanter, fresher odor.

You can re-odorize thousands of dozen pairs for a few dollars worth of a TEX-O-DOR.

Dr. Donald Laird made the survey among these 250 women. Ask us for a complimentary copy; it is most interesting.

GIVAUDAN-DELAWANNA INC.

80 Fifth Avenue, New York, N. Y.

Silk Dyers ★ developed this ★ Silicate

MORE than a quarter of a century ago, the dyers cooperated with P. Q. technicians to produce a dependable silicate for weighting processes. STAR Brand was the result. Ever since, the continued vigilance of quality standards has insured uniform satisfaction to the silk dyeing trade.

STAR Brand is likewise preferred for peroxide bleaching.

Know more about silicate of soda, an important chemical in your processes. Literature furnished on request.

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General Offices and Laboratory

121 S. THIRD ST., PHILADELPHIA

Chicago Office: 205 W. WACKER DRIVE

Established 1831

Hartex Sulfated Olive Oil

A carefully prepared product possessing super qualities as a dyeing assistant, softener and finishing agent. No charge for trial sample.

Write for reprints on "Analysis of Sulfonated Oils", "Theoretical and Applied Silk Soaking", and other reprints on textile processing and chemical analysis.

THE HART PRODUCTS CORP.

Textile-Processing Specialists

1440 BROADWAY NEW YORK, N. Y.

ETHYL (SYNTHETIC) ETHER

PRICE

ETHYL ETHER ***is the lowest-priced solvent now available except alcohol and hydrocarbons.***

USE

Ethyl Ether **is widely used as a solvent for oils, fats, and, in conjunction with alcohol, for nitrocellulose—its fastest-growing use is as an extractant, especially of organic compounds from their water solutions.**

STABILITY

"Chemically, **ETHERS** ***are very indifferent,"*** **says Richter. They are unaffected by any concentration of acids or alkalies—an unusual fact for an organic compound.**

NOVELTY

Research staffs have been considering **new uses for this old solvent since 1930 when Carbide and Carbon Chemicals Corporation began its industrial synthesis.**

UTILITY

As a SPOTTING COMPOUND **Ethyl Ether has never been excelled. It is a quick solvent for oils, fats, and greases; especially noted for its rapid evaporation and hence the efficiency of the cleaning can be speedily determined.**

SYNTHETIC ORGANIC CHEMICALS

PRODUCTS MANUFACTURED BY CARBIDE AND CARBON CHEMICALS CORPORATION

ACETONE
BUTYL ACETATE
BUTYL ALCOHOL
BUTYL CARBITOL*
BUTYL CELLOSOLVE*
BUTYRALDEHYDE
CARBITOL*
CARBOXIDE*
CELLOSOLVE*
CELLOSOLVE* ACETATE
DICHLORETHYL ETHER
DIETHYLENE GLYCOL
DIOXAN
ETHYL ETHER
ETHYLENE CHLORHYDRIN
ETHYLENE DICHLORIDE
ETHYLENE GLYCOL
ETHYLENE OXIDE
ISOPROPANOL
ISOPROPYL ETHER
METHANOL
METHYL ACETATE
METHYL ACETONE
METHYL CELLOSOLVE*
PROPYLENE CHLORHYDRIN
PROPYLENE DICHLORIDE
PROPYLENE GLYCOL
PROPYLENE OXIDE
TRIETHANOLAMINE
TRIETHYLENE GLYCOL
VINYL CHLORIDE
VINYLITE* RESINS
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PROPANE ETHANE
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PYROFAX*

* Trade-mark Registered

TW-6-32

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230 N. Michigan Ave., Chicago, Ill.

Unit of Union Carbide UCC *and Carbon Corporation*

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DL-530

A NEW
UNIQUE EFFECTIVE

Delustrant

for RAYON Fabrics of all types . . .

No Harshness
No Brittleness
No Powdering Off
No Irregularity of Finish
No Diminution of Softness

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"Controlled Delustering"
Uniformity : : Softness
Hand : Body : Drape

Order a Barrel on Approval

SOLUOL CORPORATION
123 Georgia Ave. Providence, R. I.
Telephone Broad 1088

OILS, WAXES, SPECIAL FINISHES and SIZINGS for the Textile Trades

Put

Laurel

on your

Treating Problems~

and you will find *invaluable* Laurel's long experience . . . over twenty years . . . in solving individual textile treating problems. Our laboratory is maintained for this service.

You will also find Laurel Treating Agents pure, uniform, dependable; that they preserve . . . unimpaired . . . every desirable quality of the most delicate fiber.

Soaps	Knitting Oils
Silk Oils	Penetrating Oils
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Dyeing Oils	Softeners
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Products for Specific Processes

Send for the new booklet, "Your Treating Problems"

Laurel Soap Mfg. Co.
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WM. H. BERTOLET & SONS
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BRETON
MINEROL
PROCESS
PATENTED

FOR SPRAYING COTTON

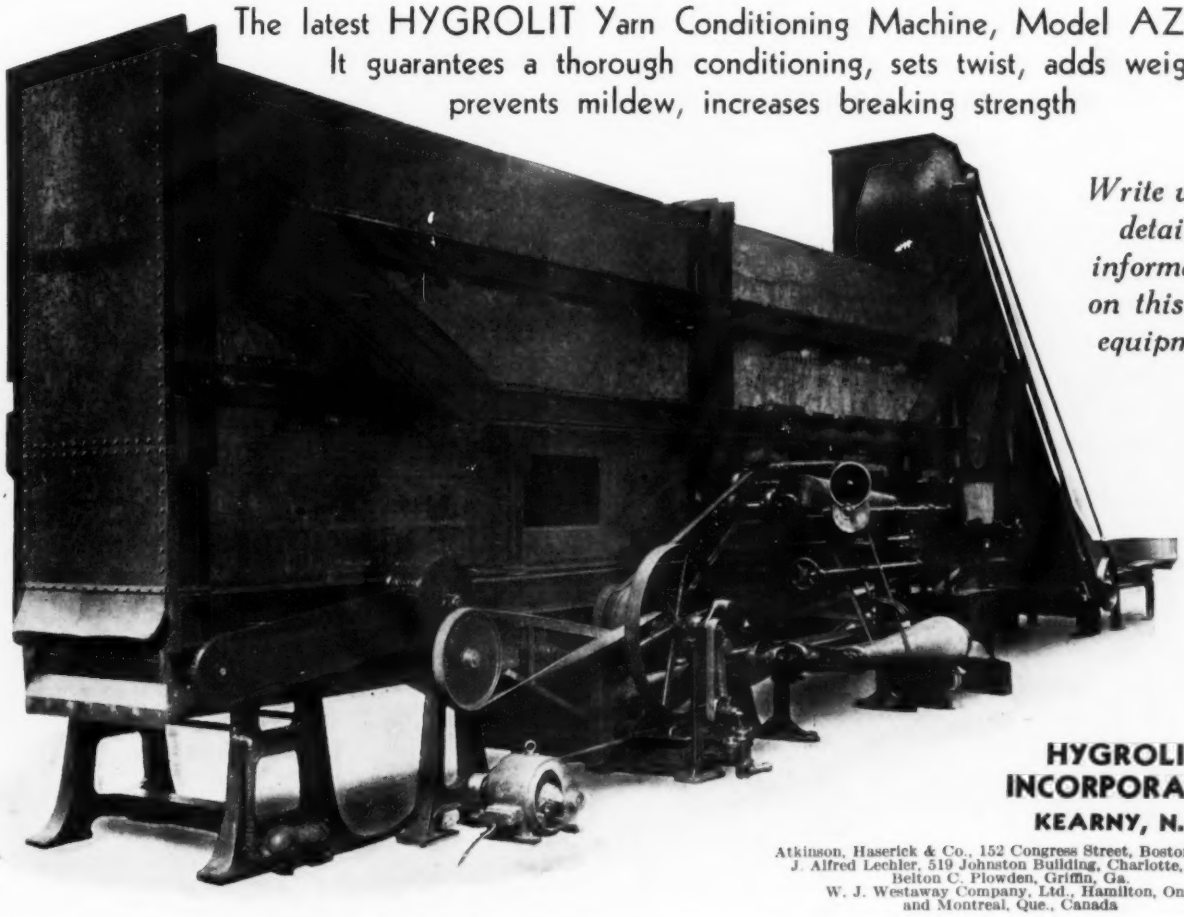
- **IMPORTANT NOTICE to cotton mill owners interested in reducing manufacturing costs and improving finished products.**
- **The BRETON MINEROL PROCESS—IMPROVED EQUIPMENT—1932 MODEL—*Simplified in operation*, and offered to the mills on a most attractive basis.**
- **MINEROL can now be more perfectly distributed, reaching and lubricating all the fibres, resulting in an even greater realization of the important advantages, which several years of successful use have demonstrated to be inherent in this PATENTED PROCESS—namely—**

Reduction of lint and dust—
A cleaner mill and better sanitary conditions—
Less invisible loss—
Saving of good cotton—
Less ends down—
Better carding and spinning—
Cutting static

BORNE SCRYMSER COMPANY

17 BATTERY PLACE. NEW YORK

The latest HYGROLIT Yarn Conditioning Machine, Model AZZ.
It guarantees a thorough conditioning, sets twist, adds weight, prevents mildew, increases breaking strength



Write us for detailed information on this new equipment.

HYGROLIT INCORPORATED
KEARNY, N. J.

Atkinson, Haserick & Co., 152 Congress Street, Boston, Mass.
J. Alfred Lechler, 519 Johnston Building, Charlotte, N. C.
Belton C. Plowden, Griffin, Ga.
W. J. Westaway Company, Ltd., Hamilton, Ont. and Montreal, Que., Canada

What you should know about

STARCHES

Warp sizing as well as dyeing and finishing processes offer many problems in the use of starches, dextrines and gums. The selection of the proper products is of great importance. Listed below are selected products available for the purposes and conditions of exacting textile manufacturers.

These starches, dextrines and gums are manufactured by carefully controlled and standardized methods. Purity and uniformity are guaranteed. Economy and efficiency are attested by the constantly increasing number of users who are getting satisfactory results.

THIN BOILING STARCHES
EAGLE TWO STAR
FOXHEAD EAGLE THREE STAR
EAGLE FOUR STAR

THICK BOILING STARCHES
GLOBE PEARL BUFFALO
C. P. SPECIAL FAMOUS N.

DEXTRINES
WHITE DARK CANARY
CANARY BRITISH GUM

IMPORTANT

Our research department will be glad to furnish additional information regarding the types and uses of these and other products as applied to the special needs of the Textile Industry. Write to—

CORN PRODUCTS REFINING COMPANY

17 Battery Place • New York City

onyx

For Fine Printing—

SILTEX GUM-T-BRILLIANT
Reg. U. S. Pat. Off.

The enthusiastic adoption of SILTEX GUM-T-BRILLIANT by so many of the leading Silk printing plants is due to the clear, sharp, beautiful prints it produces. These qualities result from the following features:

- CRYSTAL CLEARNESS
- HIGH CONCENTRATION
- PERFECT PENETRATION
- FINE LINES PRODUCED
- NO FOAM IN BOX
- WASHES OUT READILY IN COLD WATER

Write for sample and complete information.

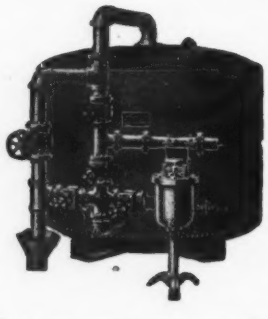
ONYX OIL & CHEMICAL CO.
Specialists on Finishing Materials
JERSEY CITY, N. J.

Our laboratories are at your service.

Roberts Filters

ROBERTS FILTERS

Provide Pure Clean Water for All Industrial Purposes



We manufacture pressure and gravity filters especially adapted to meet the exacting needs of the textile industry—

ROBERTS FILTER MFG. CO.
603 Columbia Ave., Darby, Penna.

See also CONSOLIDATED TEXTILE CATALOG

PURE WATER

The Proper Soap for every Textile need . . .

Back of every shipment of Draper soap is a 70-year experience in the making of textile soaps. No matter what job you have in hand we can blend the right soap to do it cheaply and efficiently. One trial proves it!

TEXTILE SOAPS
MADE IN PAWTUCKET, R.I.
J.O. DRAPER CO.

Nottingham Curd
Tallow Chip Soap
Palm Oil
Curd Soap

Potash Fig Soaps

Red Oil and Olive Oil Soaps for wool scourers

Soap Powder for mill floors

Olive Soap

KEM
TEXTILE PROCESS MATERIALS

"KEM" PRODUCTS

KEM PRODUCTS CO. INC.
227-229 High St., Newark, N. J.

Sizings-Gums Starch Products-Finishes
Sulphonated Oils & Detergents
Kem Rayon Size & Rayon Crepe Process

COLOR CONTROL

Pfaudler

Better dyeing is a matter of better control of the "variables" that enter into mixing, materials and manipulation. Perfect uniformity in dyes and yarns may be unattainable; but more thorough mixing in non-corrosive, non-absorbent containers will do away with many errors and much of the waste time in production dyeing.

Pfaudler has developed equipment for dye mixing and storage purposes . . . small standard mixers 10 to 100 gals . . . storage tanks to 7,000 gals. capacity . . . glass lined, corrosion resistant steel equipment that cannot absorb colors and requires only a water wash to thoroughly clean.

This equipment may be had with mechanical mixing and discharge apparatus that reduces labor costs and permits mixing to be done in or near the dye store-room, at the dye tanks or at any other desired location. It includes a complete self-contained portable mixer. The entire unit can be readily moved from place to place.

Stationary Mixer with motor driven 3 blade tinned bronze agitator. Floating shaft. Grooved pulley. Standard sizes, 20, 30, 60, 75, 100 gals.

This line of Pfaudler equipment is low in cost (priced from $24.50 up) . . . was developed especially for the textile industry . . . is now being profitably used in several well-known mills. You should know more about it . . . send for new bulletin No. 739 and price list.

THE PFAUDLER COMPANY
1530 Gas & Elec. Bldg., Rochester, N. Y.

PFAUDLER
GLASS LINED STEEL
EQUIPMENT

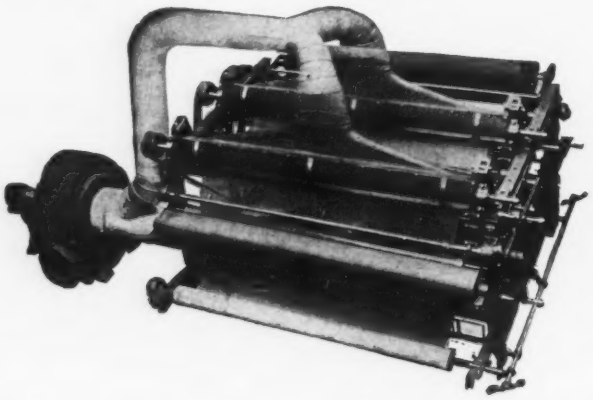
ANOTHER HERMAS Achievement

We now add a STOP MOTION to our already long line of devices to cut cloth room costs. This device stops the shear before the end leaves the cloth roll, making it fully automatic. All operator has to do is start the machine, then leave it and go on with other work.

Trims all classes of woven fabrics.

Patented suction draws all ends, loops, dirt etc., into knives without aid or brushes.

All widths, any number of knives, belt or motor drives.



Brushes added if required to clean leaf motes, etc.

Production varies according to class of cloth being run from 50 to 75 yds. and more per minute.

Production of over 100,000 looms being trimmed daily on HERMAS SHEARS.

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Southern Textile Exposition
Textile Hall . . . . Greenville, South Carolina
October 17 to 22 inclusive

IN textile manufacturing modern competition demands the most improved machinery and accessories, and the best grade of supplies. Through their use production costs are lowered and profits increased.

During the week October 17th to 22d, there will be in operation the latest types of machinery used in cottor., silk, rayon, and woolen mills, and in dyeing, bleaching and finishing establishments.

Visitors to the Southern Textile Exposition will come from every southern state. Complimentary passes will be sent by us to presidents, treasurers, superintendents, master-mechanics and other department heads of southern plants. Exhibitors will distribute thousands of complimentary tickets to operatives. Special railroad rates and Pullman car service have been arranged by the railroads.

All textile executives and operatives are cordially invited to attend. Passes will be sent to any mill on written application to us.

TEXTILE HALL CORPORATION, Greenville, S. C.

sit in!

. . . these men have news for you

Sit in with *George Sherrerd, Otis Stone* and *Jack McKeon.* They have spent their lives in the centrifugal business. They know it backwards and forwards. For months, they have been working on an extractor for textile men who want lower production costs. Now they are ready for you.

* * *

SHERRERD: Before we show you this machine, let me tell you that we have accomplished our aim to give you a machine that will show real savings on your extraction costs. Boys, you show him how we do it.

STONE: Capacity—that's part of it. Size for size, our machines have more load space than any machine on the market—10% or more.

McKEON: But that's only part of it. The machine takes a bigger load, but it's the way it handles the load that counts. At top speed on a 48″ machine there is over 35% more extraction force and acceleration can be twice as fast as on existing machines.

SHERRERD: In other words, our new Bird Extractor takes 10% more load, whirls it up to speed in about half the time you'd expect, holds it there for a shorter period (because the centrifugal force is so much greater) and then . . .

STONE: . . . and then my brake gets to work! There's a molded band on that brake and relatively as much braking capacity as you'll find on a modern automobile; . . . no grabbing, with *this* brake, but no coasting, either!

McKEON: *Safety*, did you say? Well, sir, it's true this machine is fast; so fast that you can put much more work through it every day, but—it's as safe as a bank vault! We *designed* it for high speeds and heavy loads. Safety factors are built-in, from the main spindle right through to the bedplate. And we built it of steel, mind you, not cast iron—*welded steel.*

SHERRERD: Come on, gentlemen, let's show him the machine itself and let it do the rest of the talking . . .

* * *

The Bird Extractor is real news for textile mills because it is designed and built for 1932 needs.

BIRD EXTRACTORS

BIRD MACHINE COMPANY

SOUTH WALPOLE :: MASSACHUSETTS

For *ALL* the news . . .

tear out this memo and mail it

George Sherrerd
Bird Machine Co.,
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Please send me the data on the new Bird Extractor.

Name .....

Company .....

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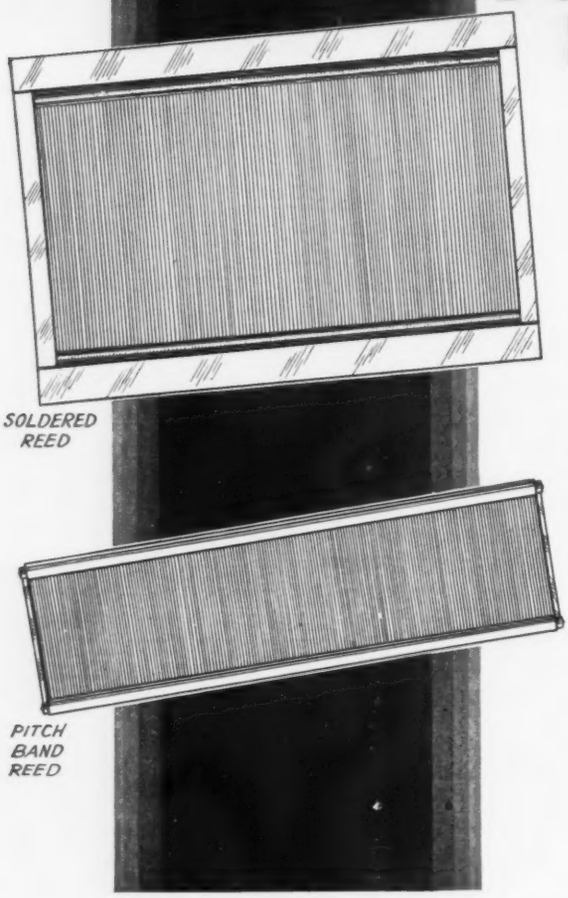
5393

DO YOU USE SPECIAL-IZED LOOM REEDS?



TO GET the maximum results from your looms, the greatest care must be taken in the selection of the reeds to be used.

Every material has different characteristics that necessitate a reed built to suit these specific requirements. There is no economy in using a type reed that is continually jagging or breaking the threads—causing a lot of "second" material that could just as well have been "top quality" if the correct reed had been used.

Our reeds are made in all types and sizes of Soldered and pitch Band; also Slasher, Beaming and Lease Combs, Leno, and Velvet and Plush Reeds.

They are made of super-flexible reed wire that maintains its original perfect shape. The reeds are absolutely smooth and perfectly spaced. They will not cut or jag the thread. Rust proof finish in Monel Metal furnished on request.

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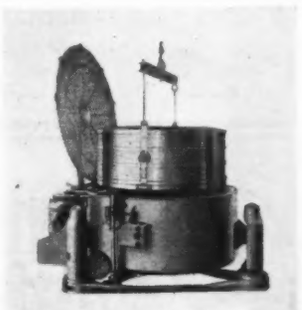

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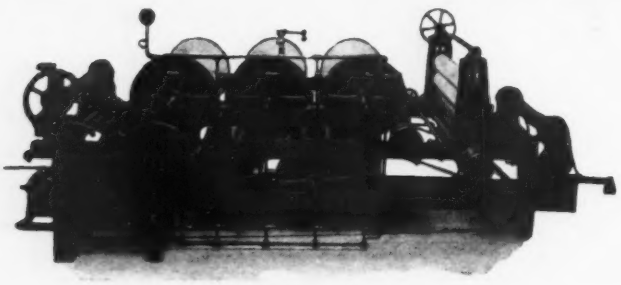

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The Johnson will also save you money by reducing *seconds* and increasing loom production. It will give absolute control over sizing, and enable you to get soft, mellow warps that weave with a minimum of end breakage. One manufacturer more than DOUBLED his loom production after installing a Johnson Warp Sizer.

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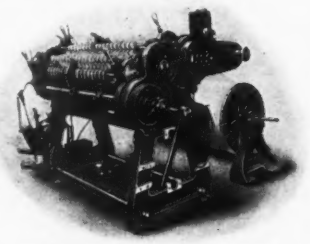
This machine delivers surgical plaster on spools. The web of plaster is slit into strips and the ends are attached to the spool. The machine measures the web, slits it, rolls it up to the predetermined yardage for which the motion is set and then stops automatically.



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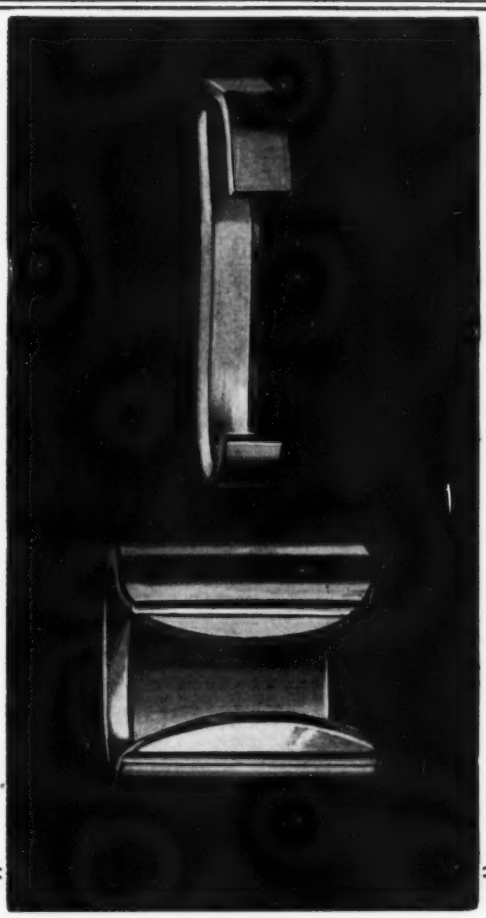

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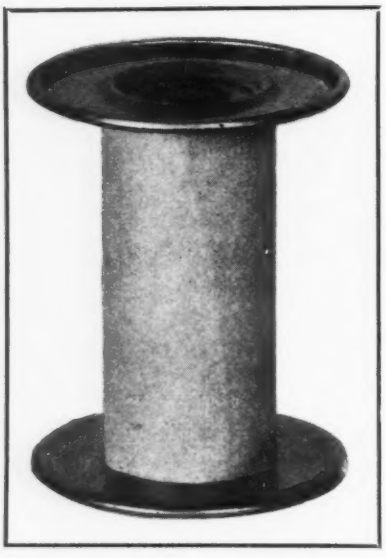

PERHAPS WE CAN HELP YOU! A representative is at your service. Our 'phone number is Cumberland 6-5020.

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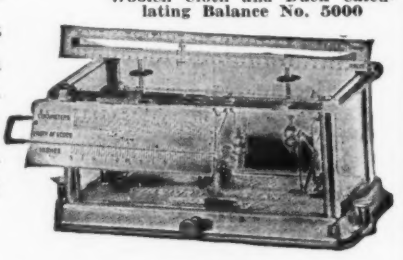

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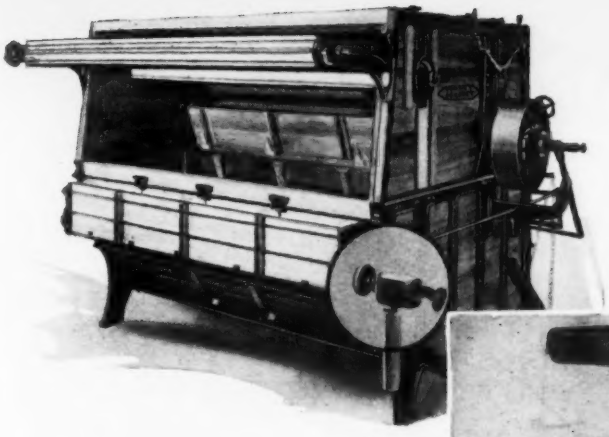

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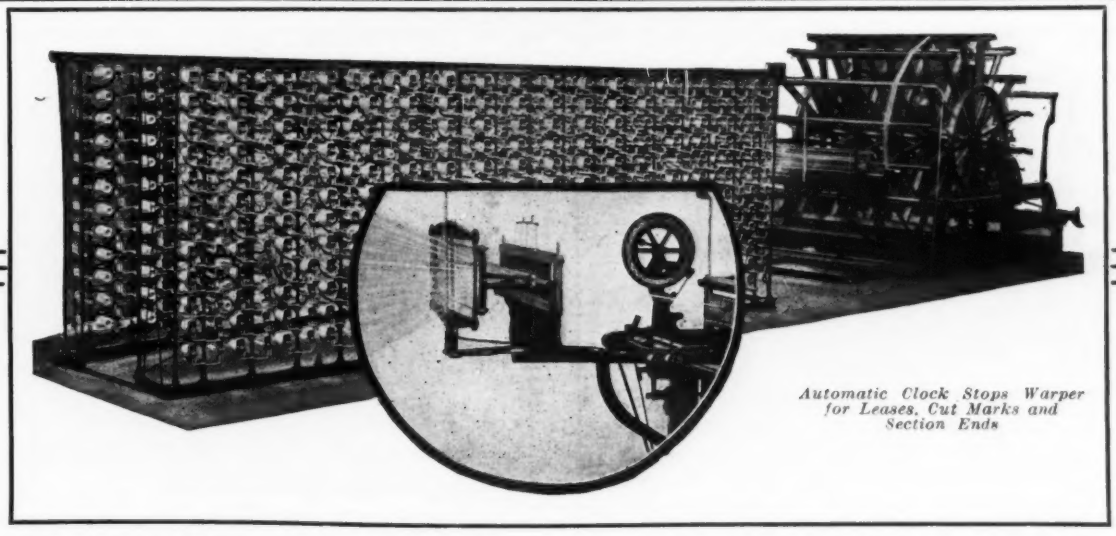

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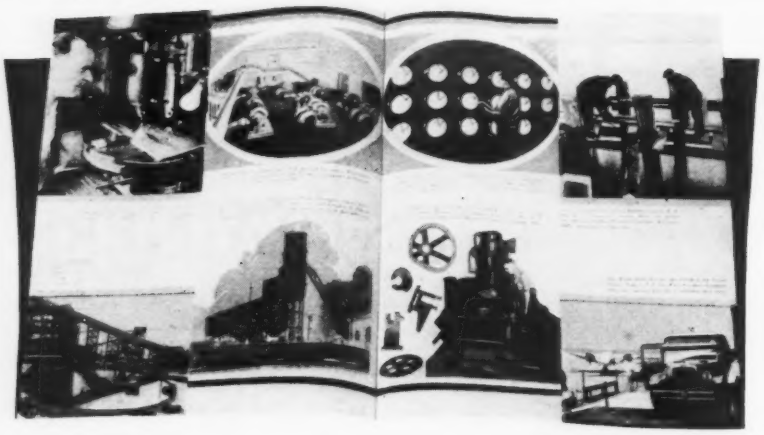

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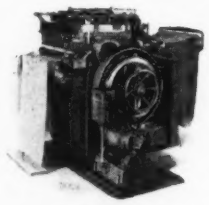

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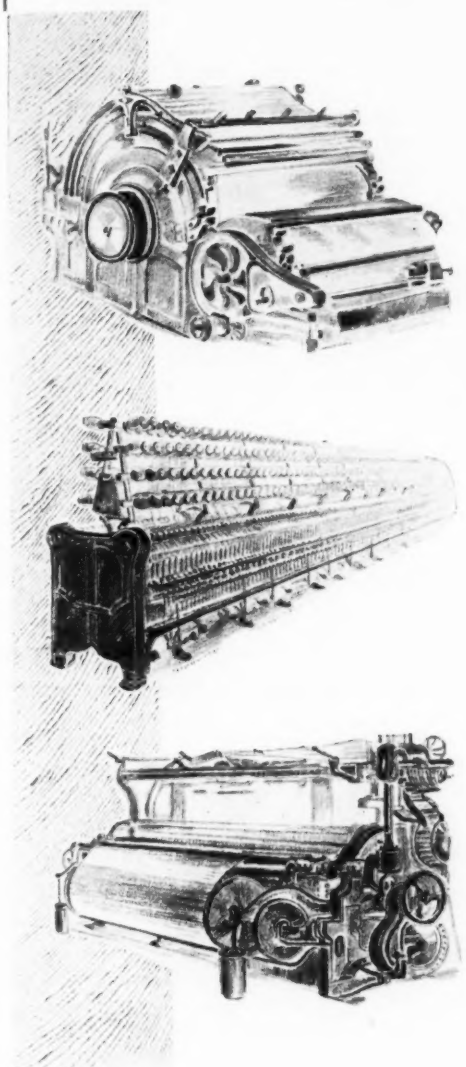

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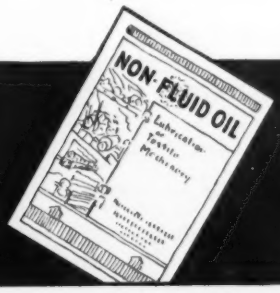

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you could—with no extra outlay—increase your inventory value by carrying in stock uncut tops of various fibres— — — — —

YOU would then write for full description and quotation on the

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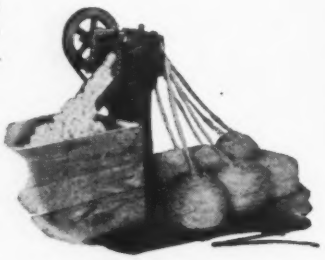

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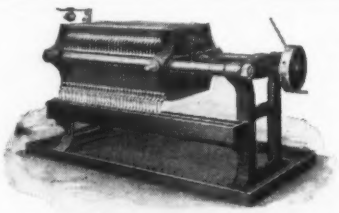
THE PEARSE SLAUGHTER BELTING COMPANY
Greenville, South Carolina



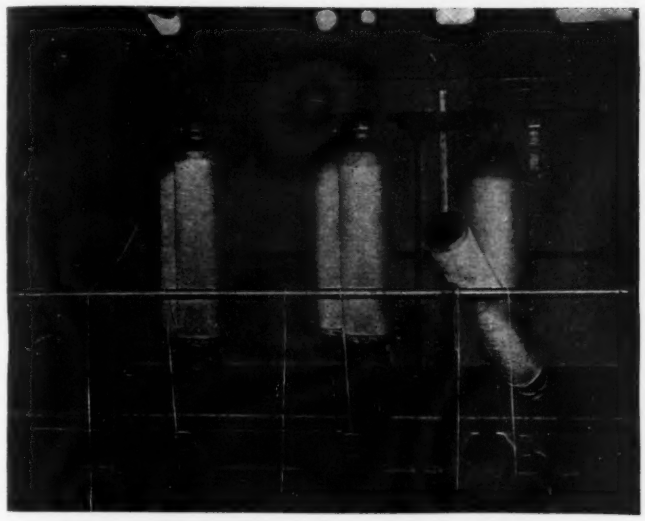
FILTER PRESSES
For Manufacture of RAYON
D. R. SPERRY & COMPANY
Batavia, Illinois

H. E. Jacoby — 95 Liberty St., New York, N. Y.

Drop Forgings
Wrenches Screw Machine Work
Bolts Nuts Cap Screws
Eye Bolts Studs

We specialize to the Textile Trade

RHODE ISLAND TOOL CO.
PROVIDENCE, R.I.



Stronger Yarns of uniform size result—

The use of Eclipse Ball Bearing Bobbin Holders eliminates stretching and back draft. The roving is always under the steady gentle pull, so essential to the production of soft, extra strong yarn of uniform size.

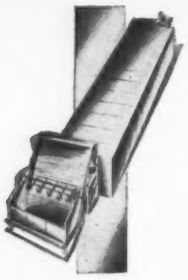
The Eclipse suspends the bobbins from overhead by a ball bearing universal joint, and leaves a clear space between the bottom ends of the bobbins and the creel board below them. No lint can gather. Cleaning is accomplished without interfering with continuous production.

Write us for full particulars concerning free trial.
Send for illustrated bulletin.

ECLIPSE TEXTILE DEVICES, INC,

ELMIRA, N. Y.

BOBBIN HOLDERS



SOMETHING TO DRY?

PROCTOR DRYERS SHOW SAVING WAYS TO DRY MANY MATERIALS

Are you, like so many other manufacturers that are waging a winning war against economic conditions today, engaged in developing new products . . . or seeking more efficient and less costly methods of producing old ones?

In either case, if you are confronted with a problem of how best to dry your material, we'd like to help you solve it. Lately, we have helped a number of manufacturers in the drying phases of their planning of new products . . . and shown a great many more how to improve their drying methods so as to effect substantial savings. Often this improvement takes the form of a better quality of drying results and the elimination of waste in materials . . . often it is in the devising of entirely new and better ways of handling the materials through the drying process. We may be able to do the same thing for you, and to your profit.

In any problem of drying, our recommendations are based on an experience of 49 years in dryer engineering . . . not only for all branches of textile industry wherein drying is required, but also for many other industries.

The success attendant to the growth of our organization to the largest producers of drying machinery in the world, has been an incentive for constant developments and improvements in our product . . . Proctor Dryers. As a result, these machines in a wide variety of types embody the very latest advances in dryer-engineering science . . . and show new, saving ways to dry widely dissimilar materials. We'll gladly acquaint you with the type of Proctor Dryer for your specific needs, and point out its advantages. Write

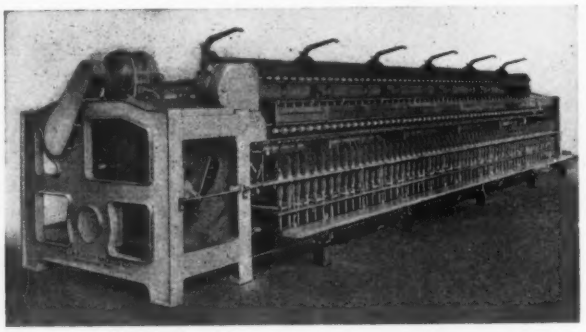
PROCTOR & SCHWARTZ, INC
PHILADELPHIA

WOOLEN SPINNING
Mules *and* Frames

The Davis & Furber Machine Company builds both Mules and Frames and is in a unique position to give unprejudiced advice as to which of these types is best suited to any particular mill. One hundred years' experience in making Carding and Spinning Machinery for the best mills insures good advice to those interested.

Our new Ring Spinning Frame with stationary ring rail and movable spindle rail embodies all of the improvements which recent experience has shown to be advisable.

Bring your spinning problems to us. Send us your roving. Come yourself and see it spun.



Ring Spinning Frame (Model B)

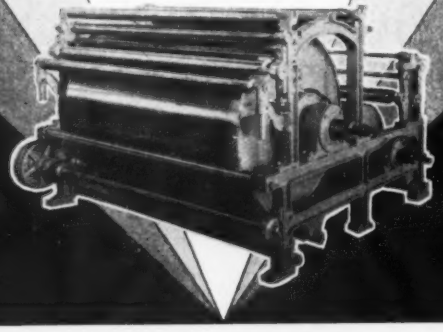
DAVIS and FURBER MACHINE COMPANY
North Andover, Mass.

PALMERS

General Palmers save the cost of an extra operation and produce a superior finish. Easily attached to any of your tenters.

Have been repeatedly re-ordered by America's leading processors. Finish from 15 to 60 yards a minute. Readily heated with a small amount of steam. Write today for complete details — no obligation.

GENERAL MACHINE CO., Inc.
We also manufacture Dye Jigs, Agers, Dye Becks, Button Breakers, Re-rollers, etc.
189 Caldwell Ave.
Paterson, N. J.



CONTROL

Thundering hoofs roar along the turf .... a swerve, and then .... a crack like a pistol shot .... straight as a die, the ball goes between the posts. A goal results from perfect control of horse and mallet.

The goal in the business of manufacturing textiles is sales, and sales depend in the last analysis on uniformly high quality of product at the right price.

Mill men in recent months particularly have found the slasher room one of the most vulnerable spots for effecting substantial economies and improving hands.

Size cooking — size application — drying — all are being carefully weighed.

Many mills have adopted the *Tycos* Slasher Control System. Invariably the results have been highly favorable. This automatic control coordinates the whole operation. Manual control cannot be compared.

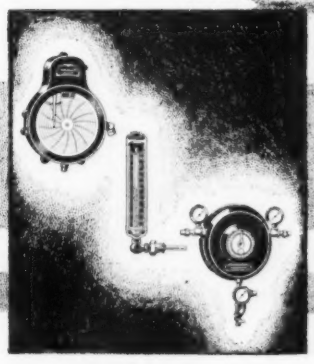
We will gladly send you the complete story of *Tycos* Slasher Control System together with full details of the service it can render you. Write us about your problems today.

Taylor Instrument Companies

ROCHESTER, N. Y., U. S. A.

Taylor Instrument Companies of Canada, Ltd., Toronto, *Manufacturing Distributors in Great Britain*, Short & Mason, Ltd., London.

Tycos TEMPERATURE INSTRUMENTS

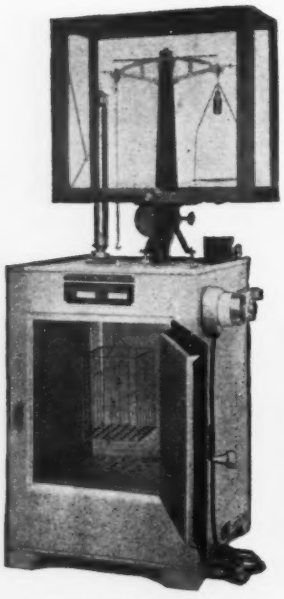


INDICATING RECORDING CONTROLLING

Two New Type EMERSON

TEXTILE CONDITIONING OVENS

One for LIMITED AMOUNT of Testing and the Other for Mills with LARGE QUANTITY of Samples to Be Tested



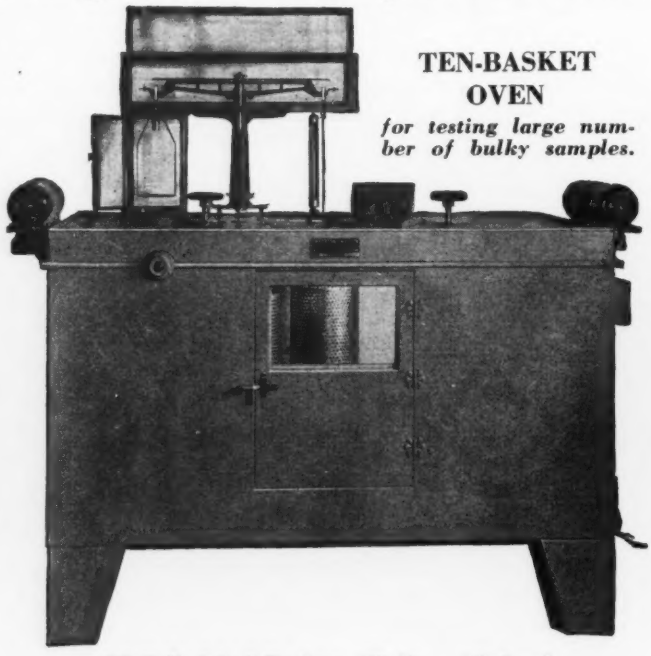
MIDGET OVEN
with one basket 4" x 4" x 6", for the small mill.

Our various types of ovens are used extensively for determining the moisture in Wool, Cotton, Silk or Rayon, both raw materials and materials in process.

***for* Conditioning Oven Information**

Write to

EMERSON APPARATUS COMPANY
177 Tremont St.
MELROSE, MASS.



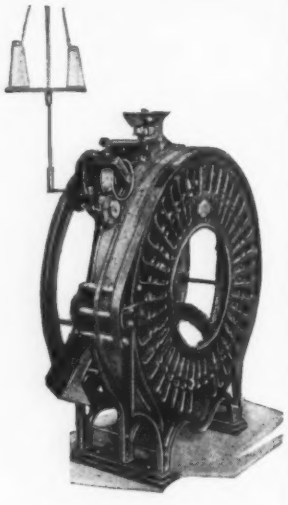
TEN-BASKET OVEN
for testing large number of bulky samples.

10 Cylindrical Baskets, 8" dia. x 9" depth.

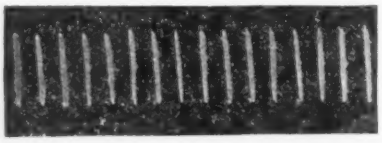
Perfect Butted Seams

for Faster and Smoother Finishing

▲



The Rayer & Lincoln Rotary Sewing and Marking Machine, fitted with the latest *Dinsmore Improved Positive Stripping Attachment* and showing the application of the *Merrow Butted Seaming Head.* Sews a strong, flat butted seam, trims the goods evenly with a narrow margin and automatically marks each piece as sewing is done. This machine will save its cost each year—you need it for modern, low-cost finishing. The Merrow Butted Seaming Head can be applied to your present machine—write for estimate of cost.



DINSMORE MFG. CO.
SALEM, MASS.

INVERSAND ZEOLITE WATER SOFTENERS
(Over 200 Sizes)

BASEX "NATURAL" ZEOLITE
and
HUNGERFORD WATER FILTERS

1932 Catalog and Sample of Zeolite Sent on Request.

HUNGERFORD & TERRY, Inc.
CLAYTON, NEW JERSEY

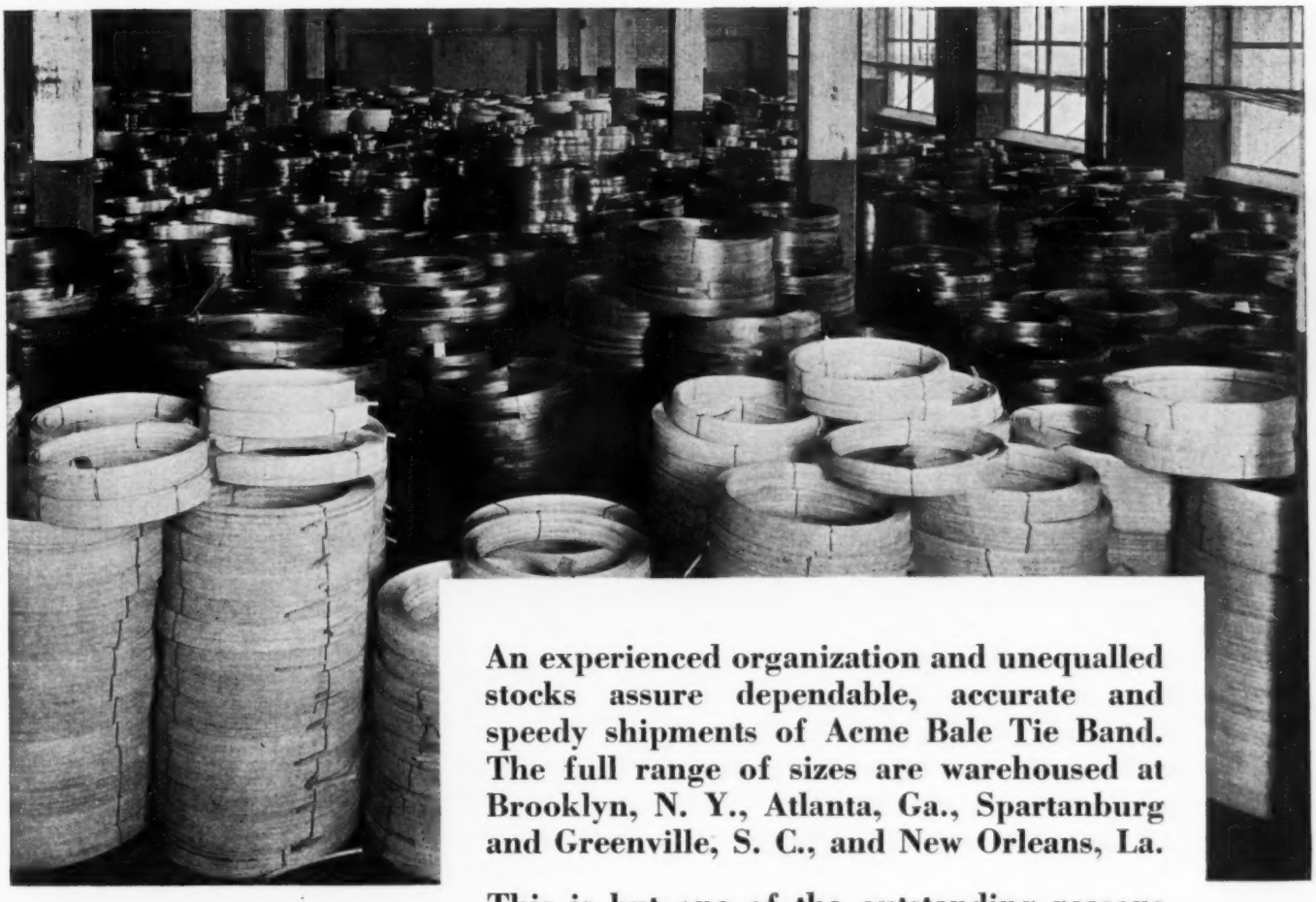
SOUTHWORTH HUMIDIFIERS

Maintain
Uniform
Humidity

Send for Free Booklet

SOUTHWORTH MACHINE CO.
Portland, Maine

Quick Deliveries
for users of
Acme Bale Tie Band



An experienced organization and unequalled stocks assure dependable, accurate and speedy shipments of Acme Bale Tie Band. The full range of sizes are warehoused at Brooklyn, N. Y., Atlanta, Ga., Spartanburg and Greenville, S. C., and New Orleans, La.

This is but one of the outstanding reasons why most textile mills use Acme Band.

Acme Bale Tie Band has four advantages—true temper, maximum strength, clean, rust-resisting finish and smooth, burrless edges.

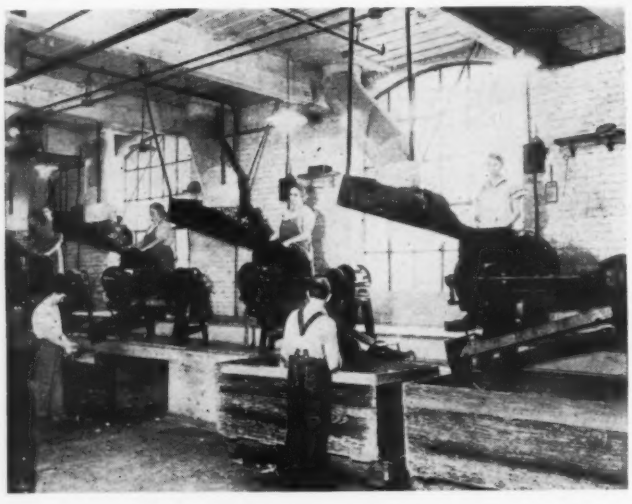
Give Acme Band any test you like and compare it with any other band you may choose. Acme Band in your plant will insure steady production and maximum security to bales.

ACME STEEL COMPANY

General Offices: 2832-40 Archer Ave., Chicago SAVE WITH STEEL *Branches and Sales Offices in Principal Cities*

BROOKLYN, N. Y., 219 36th St. ATLANTA, GA., 603 Stewart Ave., S. W. NEW ORLEANS, Masonic Temple Bldg.

CAN YOU AFFORD TO PASS UP $800?



Illustrated above are four of the seventeen Type K Bobbin Strippers, installed at Dan River Cotton Mills, Danville, Va.

This Mill reports that the cost per thousand bobbins was cut almost in half when Type K's replaced Utsman Machines. Net saving—$13,600 annually.

Few mills have 900,000 bobbins a day to clean, but you'd be surprised how many are saving upward of $800 a year—with the help of Type K's, of course.

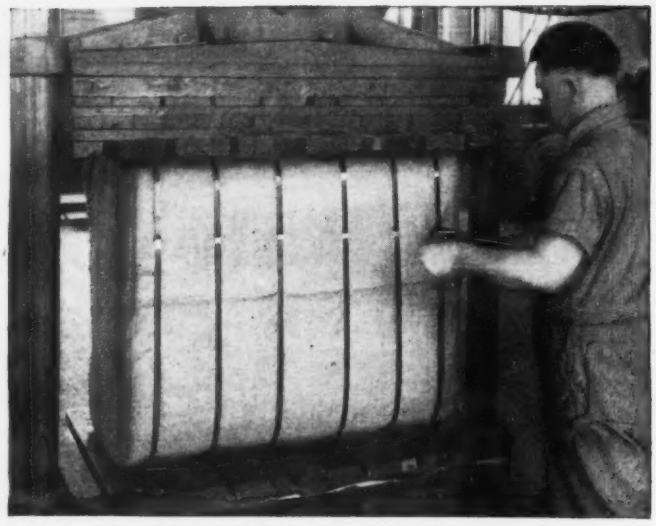
Few Mills Can Afford To Pass Up $800 Savings. Can Yours?

Write for "Type K Facts"—a loose-leaf book of reports from other mills, giving definite facts as to how they were able to reduce their bobbin cleaning costs. These reports are free to mill executives, only.

THE TERRELL MACHINE CO·INC
CHARLOTTE·N·C·

General Supply Co., Danielson, Conn., representatives for N. Y., N. J., Pa., New England States and Canada

Geo. Thomas & Co., Ltd., Manchester, England Agents for Great Britain and Continental Europe.



Stanley Eversafe
-- *the name of a better* Bale Tie System

Even the most critical executive cannot help admitting the logic of changing to Stanley Eversafe in view of advantages like these:

1. **Stanley DS Seals make much stronger joints than any other type of seals.**
2. **Round Safety Edges and Ends on Stanley Eversafe prevent cuts and scratches and speed up baling operations.**
3. **Stanley Eversafe Ties "Coiled Double" save just half the time in uncoiling and measuring.**
4. **The Satin Finish on Stanley Eversafe gives you smooth, clean ties to work with.**
5. **Made of Stanley Steel, Stanley Eversafe Ties are of uniform gauge and tensile strength to insure the greatest efficiency.**

Let us prove to you these statements

THE STANLEY WORKS
New Britain, Conn.

Atlanta Office:
The Stanley Works Sales Co.
552 Murphy Ave., S. W., Atlanta, Ga.

Carolinas Representative:
Horace E. Black
P. O. Box 424 Charlotte, N. C.

Many minor cuts, digs and scratches, generally unreported, slow up tying operations. Round Safety Edges and Ends on Stanley Eversafe Ties prevent such injuries and speed up operations.

Your Firm's Name, Trade Name, Trade Mark, Slogan, Warnings and Special Designs can be had printed continuously on Stanley Colorgraph Ties.

Stanley EVERSAFE Bale Ties and Seals

FINNELL COMBINATION
Scrubs and picks up the water in one operation!

Have you ever tried to get a mill floor clean *all at one time* with hand methods of mopping or scrubbing?

What happens? Hardly has one spot been gone over till bobbin boys and other workers have tracked it up. By the time the cleaning crew is through, the place where they began is almost as dirty as it was before.

Right there is the cause of much spoilage due to soilage, the cause of increased accident hazard and reduced efficiency, that may mean the difference between a profit and a loss.

Suppose you clean the same area with a *Finnell System?* With the No. 90 combination *Finnell* shown here it is possible to scrub the whole floor at one time in less time than it would take to mop part of it. It scrubs and picks up the water *in one operation.* It gets all the dirt off and keeps it off; the dirty water is drawn up before the dirt has a chance to settle. It leaves the floor dry—less likely to be tracked up right away. Getting all the dirt off at once means that floors stay clean longer.

The *Finnell* scrubs with a power far greater than human hands can exert. It routs out the grime and grease, even from cracks and corners. The *Finnell* will readily reach most of the space under looms and spinning frames. In the nine different sizes of this *Finnell* line there's a *Finnell* adaptable to any width of alley.

Investigate now. It costs nothing to have a *Finnell* Engineer make a survey and recommend which of the *Finnell* sizes is best suited to your requirements. Why not investigate now and quit wasting time and money with old fashioned hand methods which get floors only half clean? Address FINNELL SYSTEM, Inc., 1906 East Street, Elkhart, Indiana.

Everything Needed to Maintain Floors

Finola, "the standard of scouring powders". *Solarbrite,* "the emulsifying scrub soap" (liquid) *Finnell-Kote,* "the supreme floor dressing" "A combination of vegetable and insect waxes applied through an electric heater produces the last word in beautiful, long life, dirt resisting floor coatings."

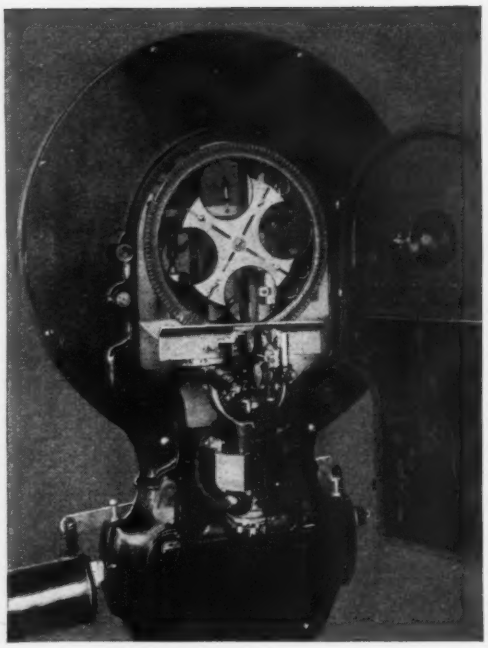
The Finnell Mop Truck keeps dirty water and clean water in separate compartments. The water absorbed from the floor is wrung into one compartment. The mop is then rinsed in the clean water in the other compartment before being applied to the floor again.

Tell Tale Tracks that lead to lost profits

FINNELL

Est. 1906

ELECTRIC FLOOR SCRUBBER-POLISHER



TAKE THE PENCIL OUT OF HIS HAND!

● Every time a weight or count figure is recorded by hand in your mill, you risk a costly mistake. Transposition of figures —"739" for "793"—is frequent; dim, illegible numbers are misread; 8's become 3's, 7's are 1's. No wonder puzzling errors creep in.

But now, with the invention of the Toledo Printweigh with its automatically *printed* weight or count figures on ticket and tape, the same unerring, mathematically exact protection, which good business demands for money figures, can be thrown around all stock and production operations in a textile mill where weight or count is the governing factor.

The Toledo Printweigh operates instantaneously at the time of weighing. It prints the exact pounds and ounces of each individual draft, on a continuous tape, on a ticket in several copies or on both. It is highly flexible and will fit any system of accounting, production records or stock control, tightens them and sets new and higher standards of industrial accuracy. The Printweigh can be installed at any weighing point in your mill or on any late model Toledo Dial Scale.

Ask the nearest of the 181 Toledo Scale Offices to show you all of the features of Toledo Printweigh—the printed ticket in several copies, the continuous printed tape record, the numbered identification and the "electric eye". Toledo Scale Company, Toledo, Ohio and Windsor, Ontario.

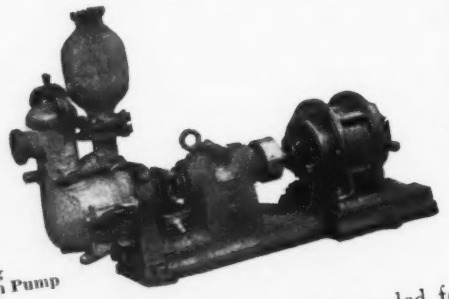
●

The skilled services of the Engineering Staff of Toledo Precision Devices, Inc. (affiliate) are available without charge, on any special problems of weighing, testing, inspecting, classifying or handling of materials or ingredients in industry; and particularly the use of the "electric eye" as a medium of precise control.

TOLEDO SCALES

NO SPRINGS · HONEST WEIGHT

MODERN ACID HANDLING



No. 50 Self-priming Duriron Pump

TODAY . . . *modern equipment* is needed for handling, transferring, circulating corrosive solutions. Duriron Valves and Self-priming Pumps are modern in performance, durability, economy. They stand up indefinitely under a wide variety of corrosives and unload tank cars safely. Stop equipment losses, speed up work. Non-contaminating. Write for details.

THE DURIRON COMPANY, INC.
428 N. Findlay St., Dayton, Ohio

DURIRON

FARREL-SYKES *"The Gear With a Backbone"*

GEARS

Spur, Helical and Herringbone Gears of any material suitable for gears.

$\frac{1}{4}$ in. to 20 ft. dia.
$\frac{1}{4}$ in. to 54 in. face.
24 to $\frac{3}{4}$ D.P.

If accuracy, durability, smooth and silent operation and high efficiency are desired, Farrel-Sykes are the gears to use.

GEAR UNITS

Herringbone Gear Drives or Speed Reducers available in single, double and triple reductions —any ratio from 1/1 to 300/1 —any horsepower from 1 to 10,000.

Built with great strength and rigidity, Farrel-Sykes Gear Units meet all requirements for uniform, silent and positive transmission of power.

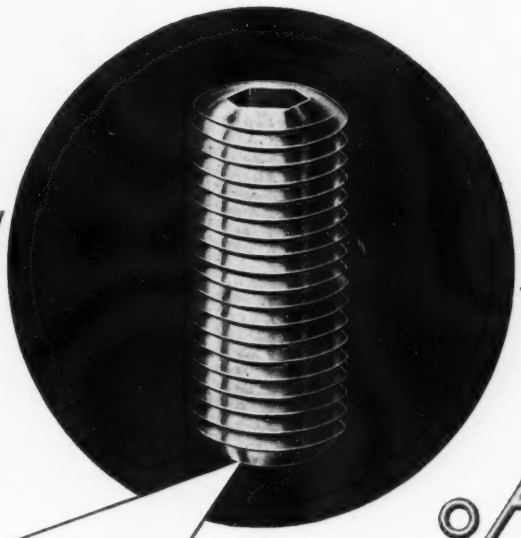
Catalogs on Request

FARREL-BIRMINGHAM COMPANY, INC.

300 Vulcan St., Buffalo, N. Y.

NEW ALLEN

TRI-MARKT
TRADE MARK

HOLLOW  SCREWS

of Chrome-Mo-lyb-den-um

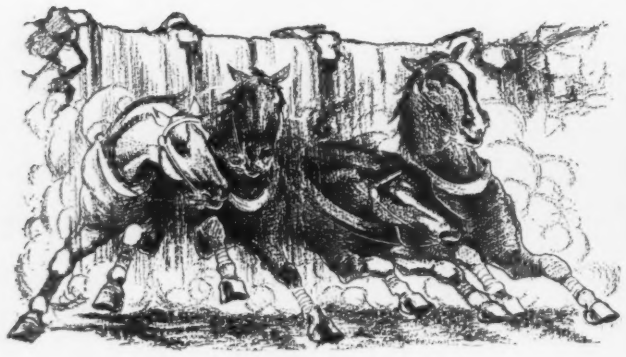
They stand more *and* they stand you LESS*

PRICE-DIFFERENTIALS in Hollow Screws are never so large as to alter this fact: — that the strongest screws are the cheapest to *USE*. Discounts hold no machines together; machinery *runs* with superior screws, breaks down on superior discounts. . . * 50% *more strength*, 25% *more hardness* in ALLEN Chrome Molybdenum screws: — write for new catalogue, or ask your mill supply Jobber.

THE ALLEN MFG. COMPANY

HARTFORD, CONN. U.S.A.

Is All Your Horsepower *at Work?*



-10 to 20% more with Smith Wheels!

Just how much waterpower you have available is a matter of conjecture with us, but we have sure knowledge on one point: *If you are not putting to work all your available water-horsepower, we can help you.*

Obsolete wheels, installed to meet the demands of an older day in the industry, are extraordinarily inefficient. We are prepared to show you how, with a modern SMITH WHEEL, you can put to work 10 to 20% more horsepower with the same head of water!

Of the 7,000,000 h.p. SMITH TURBINES now in use, many are huge, many are small. For Smith makes a type and style turbine to suit almost any condition you are likely to have: Smith Fixed-blade type; Smith Self-contained Unit; Smith-Kaplan, for low head, run-of-river conditions. WRITE FOR BULLETIN *115,* and learn how we can help you put all your waterpower to work—if it isn't at work now!

Send for Catalogs

HYDRAULIC TURBINES
S. MORGAN SMITH CO.
YORK, PA.

Boston, 176 Federal Street Chicago, 20 N. Wacker Drive
Salt Lake City, 206 S. W. Temple Street
Portland, Ore., 224 Pine Street
San Francisco, 7 Front Street

TRIPLE DUTY!

Textile mill operators have found through experience that 3-in-One can be used on fully 50 different jobs with better results than any other oil!

Here's the reason. Three fine oils are specially blended in 3-in-One to make it give extra protection wherever it is used. As it *lubricates* it also *cleans* and *prevents rust* and *tarnish.*

Purchased in the industrial size gallon cans, 3-in-One Oil provides its triple protection at very low cost. Ask your supply house for prices, or write direct to Three-in-One Oil Company, 170 Varick St., New York, N. Y.

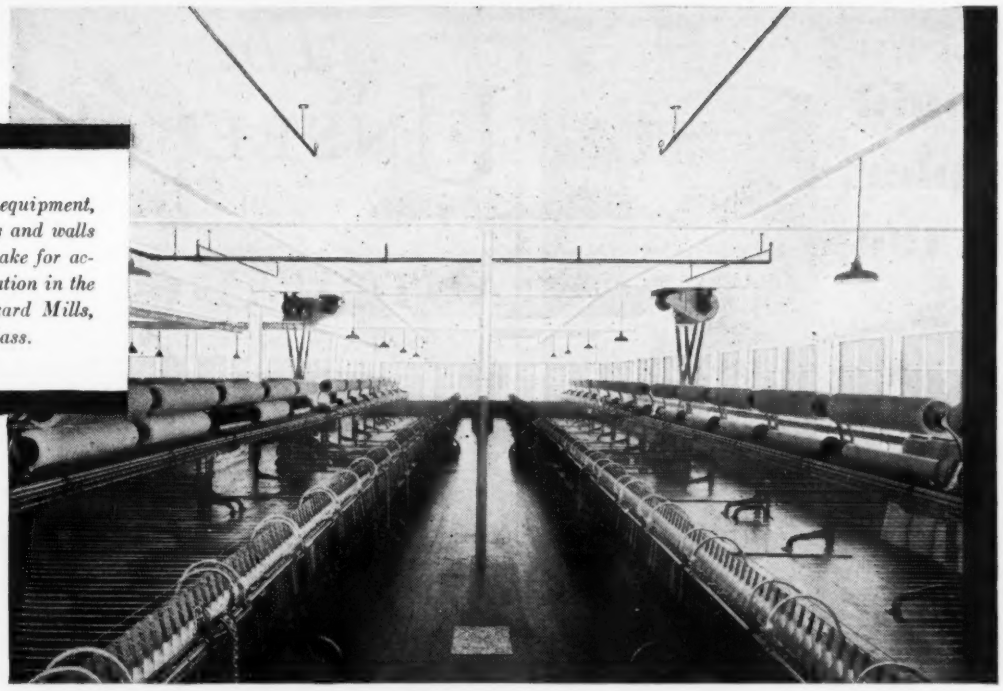
LUBRICATES AUXILIARY MACHINERY AND SMALL PARTS OF HEAVIER EQUIPMENT

PREVENTS RUST ON REEDS, NEEDLES, SHUTTLES, DIES, ETC.

PRESERVES VARNISHED PARTS OF LOOM; WOOD SHUTTLES

3-IN-ONE OIL

CLEANS - OILS - PREVENTS RUST



Modern lighting equipment, and white ceilings and walls that stay white make for accurate, swift operation in the plant of the Packard Mills, Inc., Webster, Mass.

"'Saving' on light and paint usually means *wasting profits*"

says SAMUEL G. HIBBEN

Manager, Commercial Engineering Dept., Westinghouse Lamp Co., Bloomfield, N. J.

TODAY, when business-getting means writing quotations with a needle-sharp pencil, no industrial executive can safely ignore Mr. Hibben's statement. He continues:

"While cutting out every non-profit producing expense is a vital obligation of good management, any attempt to 'save' by skimping on such absolute production essentials as good lighting equipment and clean, light-colored interiors defeats itself.

"Good lighting contributes to swift, accurate production — minimizes spoilage — reduces accident hazards — facilitates inspection — insures a better product at a lower unit cost.

"Modern lighting equipment and bright interiors that reflect and diffuse light are essential.

"WALLS GRAY WITH DIRT . . . YELLOW WITH AGE . . . REFLECT ONLY 15 TO 20% OF THE LIGHT THAT STRIKES THEM! With ceilings and walls painted a clean, lasting white, you can often raise the illumination 50 to 100%. That spells comfortable, accurate seeing ability, and increased production economy."

The leading industrial interior paint for over a quarter of a century, Barreled Sunlight plays a vitally important rôle in the modern, scientifically lighted plant.

Barreled Sunlight Remains White Longest

The smooth, non-porous surface of Barreled Sunlight is guaranteed to remain white longer than any other oil gloss paint or enamel applied under the same conditions. (See full guarantee at the right.)

Used with any lighting equipment, it delivers more working light, for a longer period of time, at a lower cost, than any other oil gloss paint.

The booklet, "More Light with Lasting Cleanliness," contains more detailed information about Barreled Sunlight. Write for it to the U. S. Gutta Percha Paint Company, 20-F Dudley Street, Providence, R. I. Branches or distributors in all principal cities. (For the Pacific Coast, W. P. Fuller & Co.)

GUARANTEE — *Barreled Sunlight, the Rice Process White, is guaranteed to remain white longer than any oil gloss paint or enamel, domestic or foreign, applied under the same conditions and according to our specifications. If it does not do so, we will give, free, enough Barreled Sunlight to repaint the job.*

Barreled Sunlight

Reg. U. S. Pat. Off.

***Remains White . . . Reflects Light . . .* LONGEST**

What could be simpler than the new ARMSTRONG TRAP?

Only two moving parts—

1. The inverted bucket.

2. The "free-floating" valve lever.

Assembled with the cap and body thus

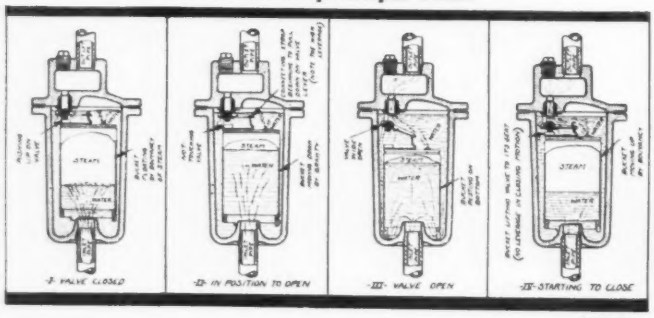
The above illustration shows the No. 213 trap. This particular size has a capacity of 2500 lbs. of condensate per hour at 125 lbs. pressure (continuous discharge). It has a diameter no greater than a pencil length and weighs only 18 lbs. The four drawings below show the simplicity of the new operating mechanism.

THE "free - floating" lever in the new Armstrong trap eliminates fixed fulcrums entirely. It makes possible an important new principle in trap valve operation — the use of high leverage for opening and direct thrust for closing. The valve lever fulcrums directly against the valve seat.

Friction will be practically unknown in these new traps. Valve parts should last as long as the trap itself. Efficient leverage and frictionless operation make possible increased capacities with minimum size.

Let us send our new booklet fully describing the improved Armstrong design.

ARMSTRONG MACHINE WORKS
872 Maple Street, Three Rivers, Mich.
Stocks in all principal cities



TW6Gray

The UNSEEN HAND of AUTOMATIC CONTROL

IN countless plants where temperature plays a vital role, the unseen hand of automatic control governs product quality and uniformity—it removes the hazards of human frailty—it prevents waste of material and fuel—it reduces labor costs and increases profits. It is the unseen hand that has taken the place of a million human hands on manually-operated valves throughout industry. It cannot err. It neither tires nor sleeps. It works a lifetime without one cent of salary. It brings scientific accuracy to replace rule-of-thumb.

This year, Automatic Temperature Control is the hand that reaches a finer product, at lower cost, to a skeptical buyers' market. In your plant, it may mark the difference between profit and loss. Is this not reason enough to investigate?

The Fulton Sylphon Company, with a staff of engineers dedicated to the art of temperature control, would appreciate an opportunity to make a survey of the benefits this unseen hand would bring to your plant. Their recommendations will cost you nothing. They may save you much. It will pay you to write now.

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Quality

From the time of its beginning, the primary objective of the Lunkenheimer Company has been the manufacture of uniformly high grade products. Strict adherence to this policy has built a well deserved reputation for quality and has made Lunkenheimer the standard by which good valves and engineering appliances are judged.

This quality standard remains characteristic of present day Lunkenheimer products. Designs modern in every respect, developed by experienced engineers, materials chosen after extensive research, and highly skilled workmanship are combined to produce a finished product in keeping with the rapid advances in engineering practice.

Careful test and inspection verify the thoroughness of each step in manufacture and assure the quality of product essential for economy in operation.

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LET US SUGGEST THE METAL

● In determining which fence will prove most satisfying in appearance—most economical first and last—two points are vitally important.

STYLE is a matter for *your* decision. And PAGE FENCE is made up in a wide range of designs.

METAL has everything to do with length of service. And in that we can be of help. PAGE offers 4 different metals—each supremely resistant to corrosion—each doing its best work under certain special atmospheric conditions:

1 Page "*Alcoa*" Aluminum
2 Page Armco Ingot Iron
3 Page Copper-Bearing Steel
4 Page Highland Wrought Iron

● Call in a PAGE FENCE EXPERT before you make a decision. With the 4 metals to select from he is in a position to offer impartial advice. His one object is to give you the fence that will give the best service in your locality. Write at once for his name. We'll send with it our new illustrated booklet—"Border Patrol"—with practical fence facts that you'll find surprisingly interesting, and most practical. Address Page Fence Association, 520 N. Michigan Ave., Dept. T3, Chicago, Ill.

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Page Fence is a Product of The Page Steel & Wire Company, an Associate Company of American Chain Co., Inc.

Fence of Armco Ingot Iron fabric is exclusive with Page

CHAIN LINK OR ORNAMENTAL WROUGHT IRON

Make sure of protection against "Dry Rot"

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CREOSOTED SOUTHERN PINE
TRADE MARK REG.

Consult an experienced Creo-pine Engineer

ARE you planning to remodel your mill? To build a new unit? To build or rebuild completely? If you are, make sure of adequate protection against the textile mill owner's arch-enemy, "dry rot"! A Creo-pine engineer can explain how Creo-pine subfloors and timbers will make your plant impregnable to the attacks of this insidious foe. He will come to your office promptly upon receipt of your letter or wire addressed to the nearest plant or office listed below. This service is yours without cost and without obligation. Use it freely. It has saved valuable time and money for textile mill owners in the East, South and Middle West.

Creo-pine Products Include:

Poles
Piling
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*The name Creo-pine on Creosoted Southern Pine is more than a trademark. It is a pledge of honest, accurate manufacture and rigid inspection from standing tree to finished product. Back of it are 24 years of wood preserving experience.

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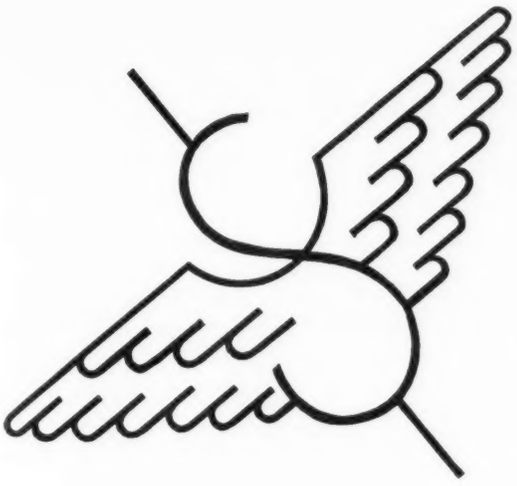
When breakdowns fly into your costs · *profits fly out of your bank account!*



Do you consider breakdowns, repair bills and consequent production delays a manufacturing inevitability?

If you could have saved 80% or better on these maintenance items during the past ten years, how much fatter would your profits have been?

And if, on top of the above savings, you could have saved 90% of spoilage, how much fatter would your bank account be today?

Here are questions every textile man can ponder over most profitably.

If these items of wasted profits can be saved, why not save them?

Alemite High Pressure Lubrication Systems plus Alemite Specialized Lubricants—TOGETHER—are saving untold thousands of dollars annually for men in your field.

May we show you in your own mills and under any conditions you specify how Alemite can save money for you?

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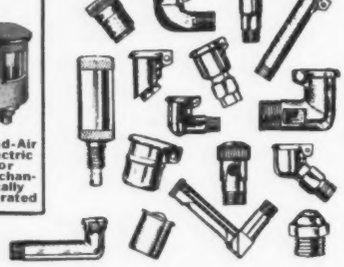

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DOUBLE SUCTION

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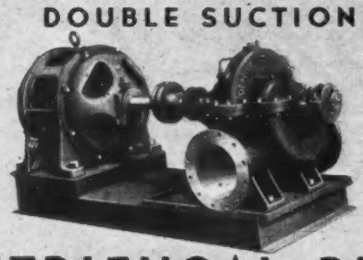

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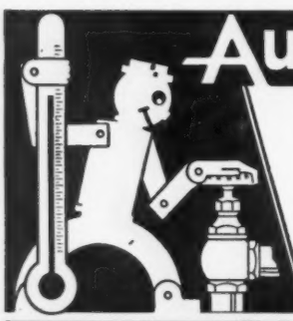

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THE POWERS REGULATOR CO.
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Textile Plant Engineers Say—

The MOST PRACTICAL DRIVE for LINESHAFTS

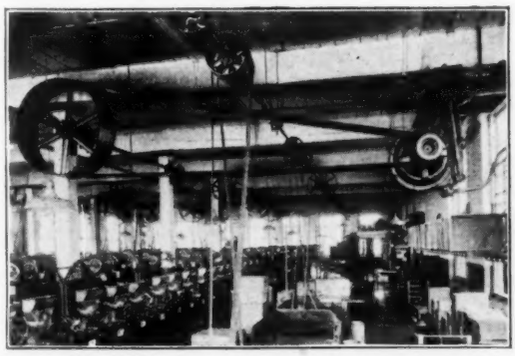
● THESE distinct advantages make the ROCKWOOD Short-Center Drive most desirable for lineshaft service:

1 *Inexpensive—Easy to Install*—no need to remove hangers or disconnect shafting. Belt may be made endless on the job.

2 *Automatic Control of Belt Tension*—no belt slip—no loss of power. The weight of the motor cradled in the belt automatically keeps the tension always the same.

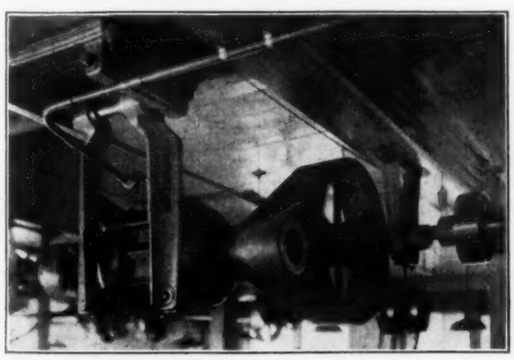
3 *Clean and Quiet Running*—requires the minimum of bearing lubrication—no messy grease case. Quietness that only a belt drive can give.

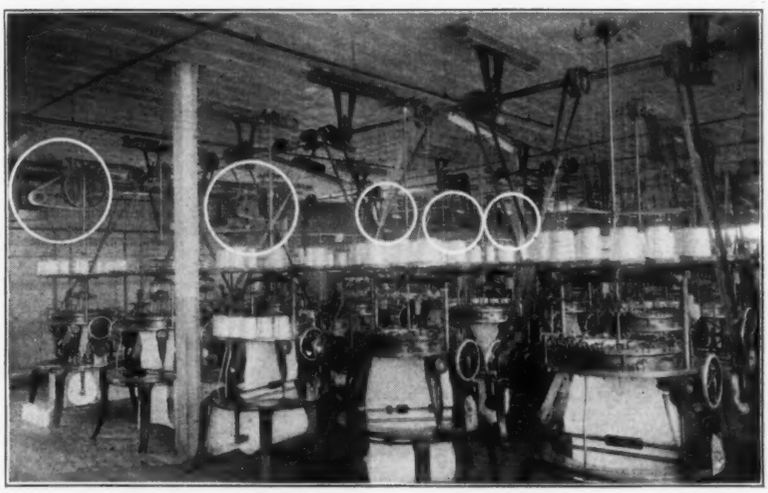
4 *Dependable — Efficient* — no bothersome maintenance. Maximum pulling capacity constantly maintained. Will give years of *trouble-free* service with efficiency higher than any other form of drive.



Drive to Main Lineshaft. Motor 50 H. P. @ 870 R. P. M.

Combing Room Lineshaft Drive. 4% increase in production over former fixed-center drive.





Five 7½ H. P. Lineshaft Drives in Knitting Mill.

● FOR many types of textile machinery, the use of lineshafts is preferable to individual motor drives—*provided* the main drive from motor to lineshaft functions efficiently and dependably. This is the "trouble zone" in many plants, but it can now easily be corrected.

The ROCKWOOD pivoted motor mounting "does the trick," because it gives the motor *complete control* of belt tension and insures maximum transmitting capacity.

Plant engineers who are now using ROCKWOOD lineshaft drives commend their superior performance. Other mills will benefit by investigating and testing this distinctly better drive. ROCKWOOD engineers will gladly advise you regarding any drive in your plant—fractional to 500 H. P. Write today for full information.

THE ROCKWOOD MANUFACTURING CO., Indianapolis, Ind.
THE OHIO VALLEY PULLEY WORKS, INC., Maysville, Ky.

Divisions of General Fibre Products, Inc.

ROCKWOOD
SHORT-CENTER FLAT BELT DRIVE

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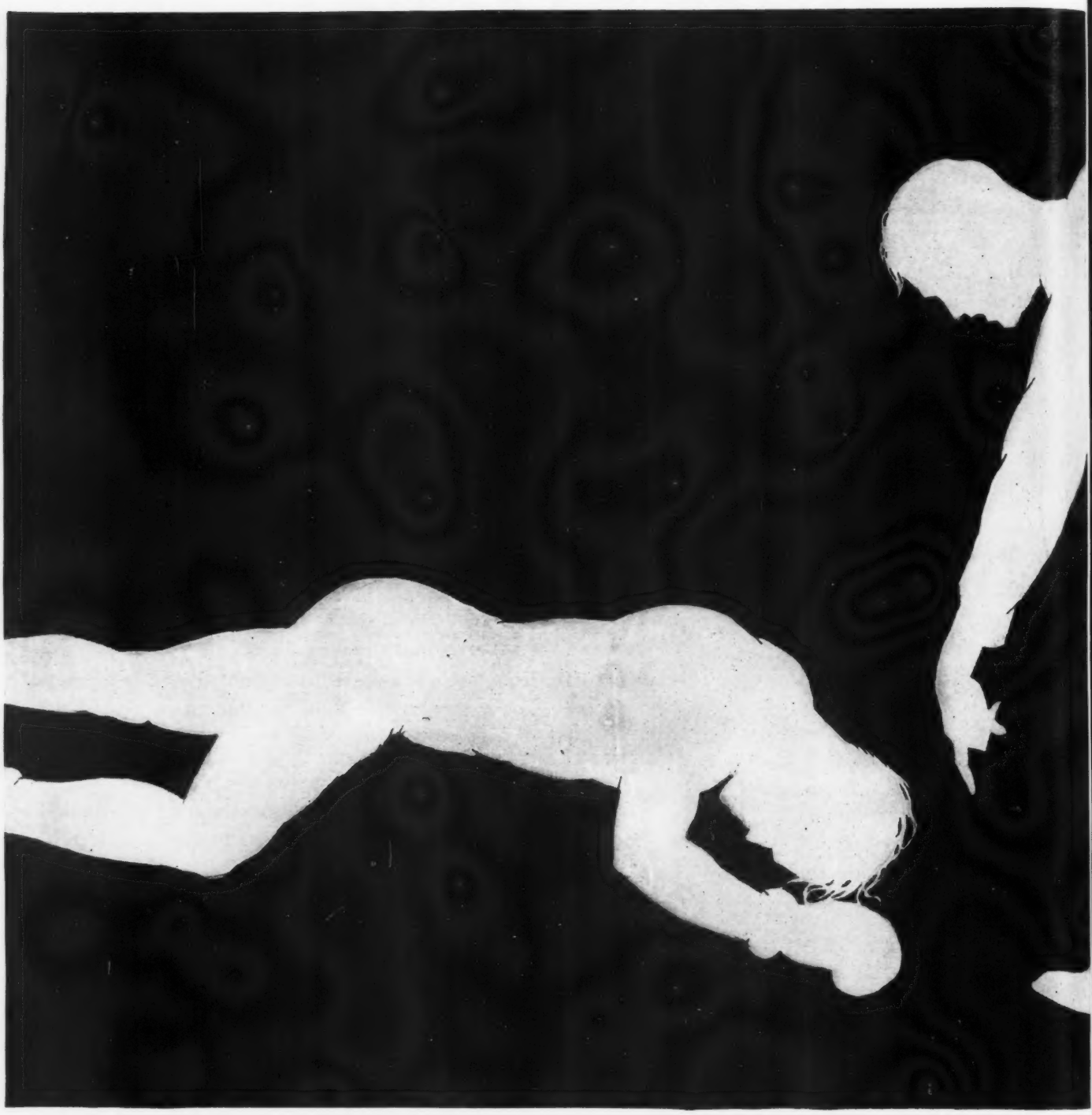

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Business men, industrialists and engineers—500,000 of them—regularly read the McGraw-Hill Publications. More than 3,000,000 use McGraw-Hill books and magazines in their business.

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Electrical West
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ways out . . . stay down . . . or GET UP *and* FIGHT!

Many businesses are in this predicament today. Whether to stand up or whether to stay down and gamble on recuperative strength to pull them through at some later date.

That's why leadership is shifting from the shoulders of "has beens" to the shoulders of "will bes"—to men who recognize that there's plenty of buying where there's plenty of selling. These men have confidence in their products, confidence in their ability to help their customers, *confidence in advertising.* They have the guts to get up on their feet and tell the world "I'm not licked till I lose my senses."

If you want to identify these business and industrial leaders—and those who are going to be tomorrow's leaders—you will find them in the advertising pages of McGraw-Hill publications week after week, month after month. To us their outstanding characteristic is their confidence in advertising—their determination to back up fully their sales force in retaining leadership or seizing it from their competitors.

Those executives who are planning to bring an end to their own little depression can make effective progress by calling in an advertising agent, checking their line of products, getting into closer touch with their customers. Perhaps restyling of products will change the sales record; maybe just some plain every-day selling is all that is needed. Here the advertising agent can counsel and produce.

If your markets are restricted to the business and industrial fields your advertising agent will show you how the advertising pages of McGraw-Hill publications can help you. Give him a chance to prove that the difference between black ink and red ink is often a matter of mind.

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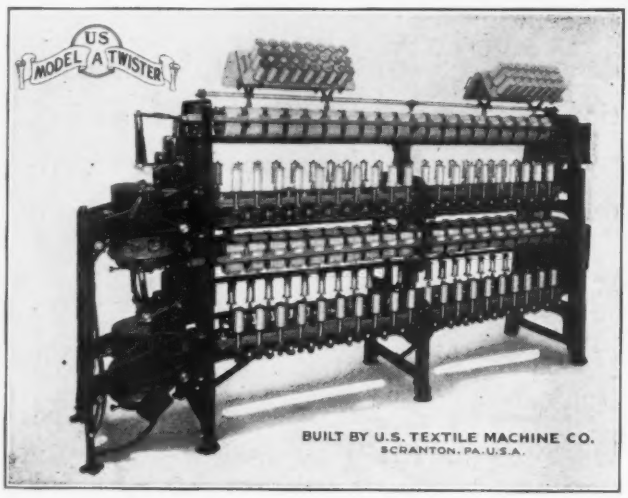

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Built in Single and Double Deck

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REPEAT ORDERS
are
Evidence Of Its Superiority

Write for Details

U. S. TEXTILE MACHINE COMPANY, Inc.
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GUARANTEED in weight, temper and style. Back of this guarantee is a 25-year experience, skilled workmanship, specially drawn stock, and an enormous amount of research and experiment in high speed traveler manufacture. Write for samples and prices.

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F. H. DARY B. G. DARY
John E. Humphries, Box 843, Greenville, S. C.
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Comprehensive, authoritative, up-to-date!

Here, based on a lifetime of experience in the design of knitting machines, is a treatise that covers the principles of knitting fabrics and the machinery for producing them, with many important facts on the development of this art both here and abroad.

Principles Of Knitting
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234 pages, 6x9, 195 illustrations, $4.00

For any man connected with the knitting industry this book offers complete, up-to-date, authoritative answers for a wide range of questions on machinery, methods and underlying principles of producing all types of looped fabrics.

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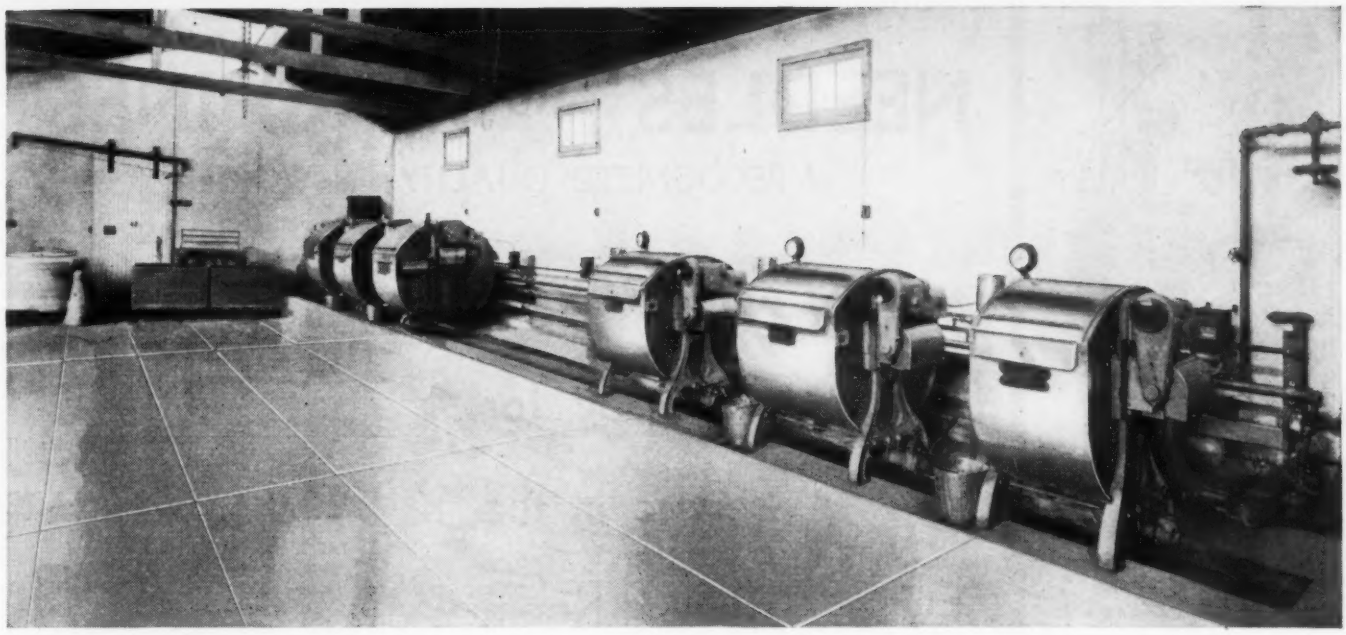


Monito Socks

TRADE MARK REG.U.S.PAT.OFF.

—an example to those who want to reduce costs

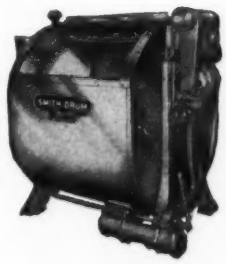
The Moorhead Knitting Company, in tune with the times, decided to reduce costs by improvement of its dyeing facilities.

To effect the greatest possible economies, it was very wisely decided to install only the most efficient machines obtainable.

The decision was in favor of SMITH-DRUM machines which were used exclusively. Apparently the plan has worked beautifully for already another order has arrived calling for additional machines.

We are prepared to submit actual figures to mills who are confronted with the same problem — reducing costs to meet competition — and still making a PROFIT.

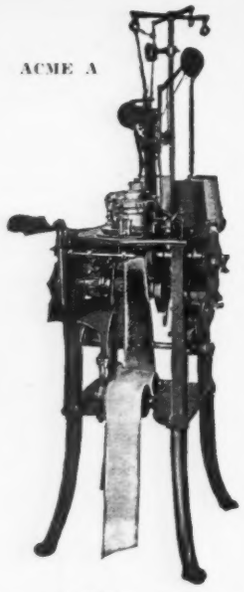
SMITH, DRUM & CO., Philadelphia, Pa.



Smith-Drum machines will be found in practically every hosiery dye house in the country — and most of the more important concerns use them exlusively. This can mean only one thing — that they are far superior to any other machine on the market.

SMITH-DRUM

SINCE 1888-BUILDERS OF THE BEST



ACME A

Revolving Cams

NEEDLES AND MACHINES

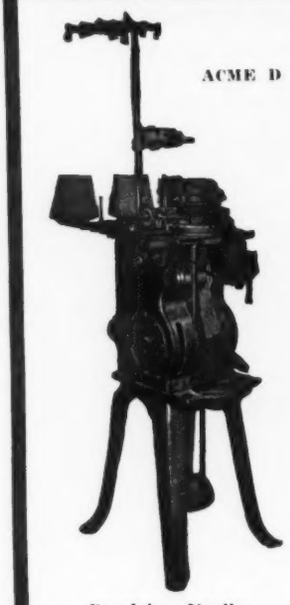
of RECOGNIZED QUALITY and WORTH

ACME PRODUCTS

are made for

Service in the

Knitting Room



ACME D

Revolving Needles

Ask those who use them

ACME KNITTING MACHINE And NEEDLE CO.

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THE LOYAL T. IVES COMPANY

ESTABLISHED 1874

NEW BRUNSWICK NEW JERSEY

Manufacturers of

SPRING BEARD KNITTING NEEDLES

For Cylinder, Full Fashioned, Warp and Rib Knitting Frames, also Narrowing, Stand. Transfer Points, and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

Six Feed Rotary Jacquard Machine for Knitting Latest Jacquard Designs.

Write for Catalogue and full information

See also CONSOLIDATED TEXTILE CATALOG

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Little Falls, New York, U. S. A.

New York Office—
D. Stromberg, 671 Bushwick Ave., Brooklyn, N. Y.

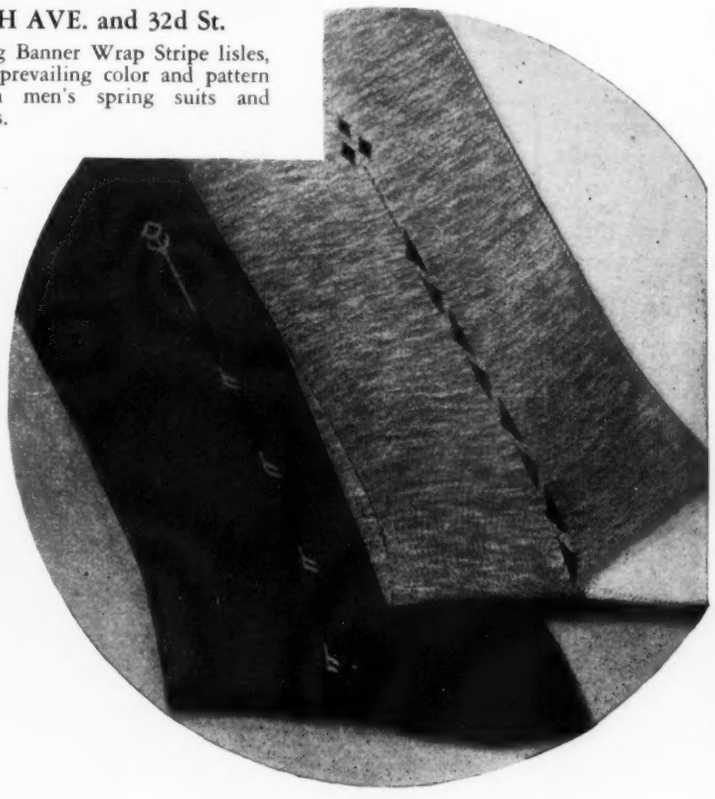
Smart retail promotions—keep **BANNER WRAP STRIPES** *busy*

BROADSTREET'S, NEW YORK
at FIFTH AVE. and 32d St.
Displaying Banner Wrap Stripe lisles, styled to prevailing color and pattern effects in men's spring suits and accessories.

PITMAN, *of Laconia, reorders battery of*
BANNER WRAP STRIPE MACHINES

Pitman Mfg. Co., of Laconia, N. H., have placed their third order for Banner Wrap Stripe Machines; reasons—1. They find the machines are adaptable to all style requirements. 2. They find a good demand for well styled wrap stripe hosiery, and 3. They find (we take it) the Banner Machine best suited for this profitable purpose.

Pitman is one of a number of mills which have recently added to their existing Banner Wrap Stripe equipment. The Banner is a time tested wrap stripe machine. Since its introduction four years ago it has been constantly improved to meet changing market conditions so that today it stands as the most practical machine on the market. The bulk of wrap stripe hosiery in the leading retail stores today is made on Banner Wrap Stripe Machines.



Banner Wrap Stripes in lisle, made by Pitman Mfg. Co., sold by Amory Browne, 31 Thomas St., New York and featured by style conscious retailers everywhere.

Frank Comment on the Retail Half-Hose Situation

We admit that there are instances of Wrap Stripe hosiery finding its way into the 10c. stores. But how is this to be reconciled with the fact that large quantities of Wrap Stripe hosiery are today being promoted over the counters of leading American retailers?

The point is this—the mills manufacturing for the 10c. trade are *not* the busy mills; while the mills which trouble to style and promote their wrap stripes are running full time, adding to their wrap stripe equipment and showing profit.

When you examine the hosiery sold in these two types of outlets you find the difference is not so much in fabric as in styling. Running a hosiery mill today without a trained stylist is like crossing the ocean without a navigator. Today you have to have style—not just new patterns, but fashion-right merchandise.

We can take you to a number of stores getting good prices on large turnovers of *Banner* Wrap Stripe hosiery. We can name a convincing number of mills that are having difficulty in meeting demands for their merchandise—a demand strong enough to leave no doubt that it pays to *style* and promote a wrap stripe hosiery line. Even in today's market? Yes, *especially* in today's market!

If you have a styling problem in connection with your wrap stripe production, why not talk it over with us. We'll do our level best to help you solve it.

President, Hemphill Company.

NEEDLES, SINKERS, JACKS, LINKS, and PATTERN SUPPLIES immediately available at all Banner branch offices.

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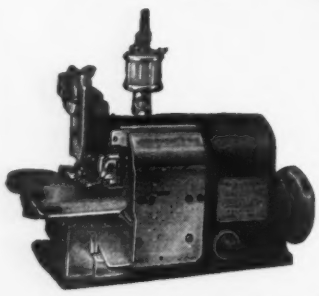
TRADE MARK REG. U. S. PAT. OFF.
AND FOREIGN COUNTRIES

HIGH SPEED MACHINES
For Trimming and Overseaming, Hemming and Overedging

Also PLAIN CROCHET and SHELL STITCH MACHINES for Use in the Fabrication of Knitted and Woven Goods of All Kinds



Illustrated above is the work of
MERROW STYLE 60 RD MACHINE
For simultaneously trimming and overedging, producing a *retentive* finish particularly desirable for use on loosely woven goods such as Rayon Bedspreads, Towels, Wiping Cloths, Blankets, etc.

—200 VARIETIES FOR 200 PURPOSES—

THE MERROW MACHINE CO.
14 LAUREL STREET, HARTFORD, CONN., U. S. A.
SEND US SOME OF YOUR FABRIC TO BE FINISHED

TMB CO
TRADE MARK

The **TOMPKINS** SPRING NEEDLE MACHINE is proving day after day the advantages of a flexible and versatile knitting machine that is STANDARD.

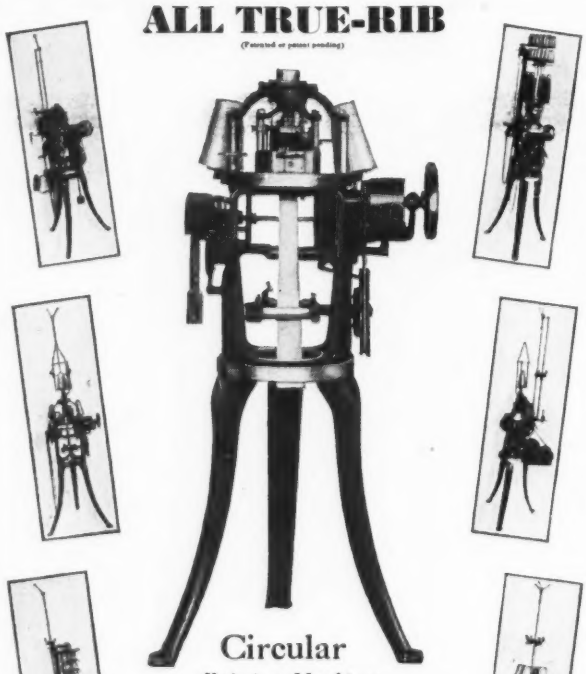
The range of fabrics, sizes and gauges possible on the one table is amazing.

Our experimental department is continually working to develop new fabrics and attachments. Long stitch burs and trick cut pressers are recent developments. Also special burs and combination pressers.

We stand ready in the face of present economic conditions to give to the knitting industry the best possible service at prices that are right.

TOMPKINS BROS. CO., SYRACUSE, N. Y.

ALL TRUE-RIB
(Patented or patent pending)

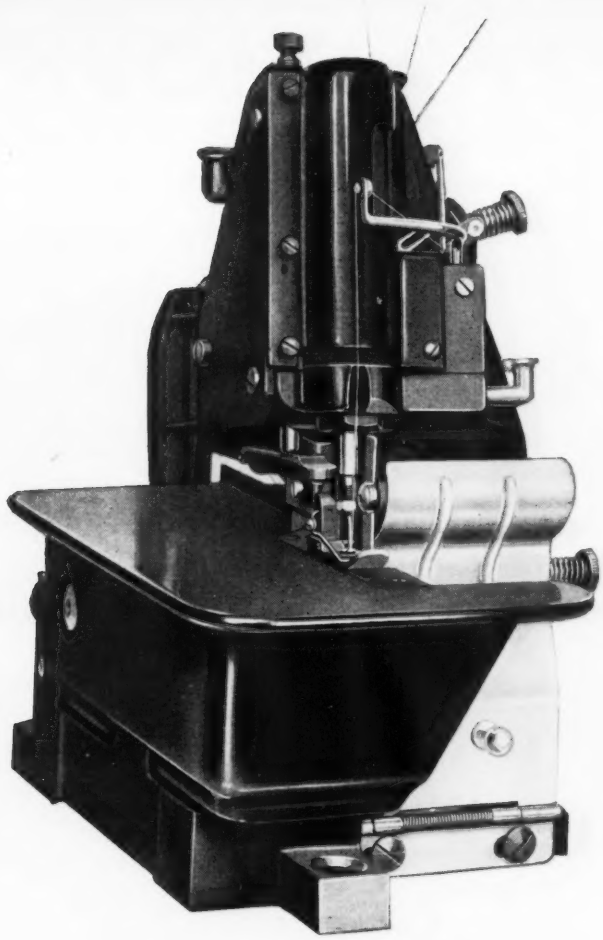


Circular
Knitting Machines
Braiding Machines
Creasing Machines

FIDELITY MACHINE CO.
3908-18 Frankford Avenue
PHILADELPHIA, PA.

THE FIDELITY UNIVERSAL RIBBER

UNION SPECIAL STYLE 39100AA



A universal overseaming machine for all sizes of mesh fabric

CHANGES in size of mesh fabric on seaming hosiery, glove silk or rayon, or changes from mesh to plain fabrics create no difficulties for the manufacturer who has Union Special Style 39100 AA overseamers in the sewing room.

This perfected, high speed overseaming machine not only handles all types of mesh hosiery, but plain hosiery, glove silk and rayon lingerie, either plain or mesh, and closing operations on hosiery toes as well. A simple change of the width of trim is all that is necessary. On coarse mesh the knife is set for a wide trim and the margin is rolled into a neat, small seam. On very fine knitted fabrics trim is set for minimum width and a plain seam produced.

Style 39100 AA operates at remarkably high speed—so fast that even with a short stitch, high production rates can be maintained. Write for a complete description of the features that make this machine so popular with the many manufacturers now using it.

UNION SPECIAL MACHINE COMPANY

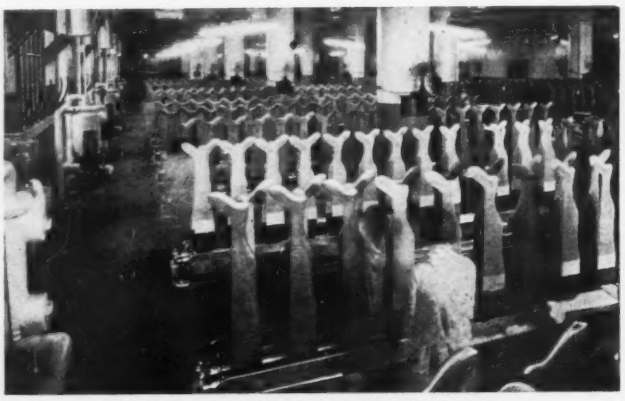
400 North Franklin St.
Chicago, Illinois

TW6Gray

PARAMOUNT

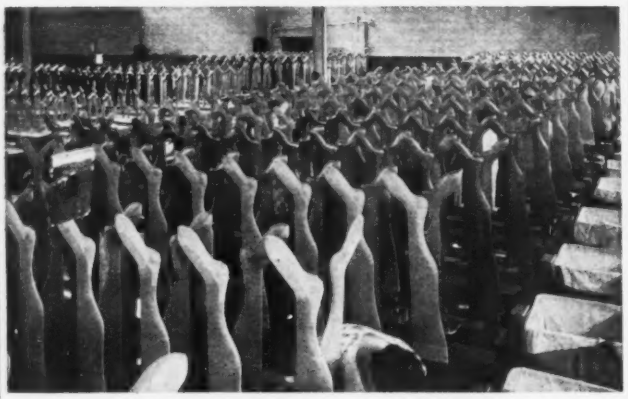
HOSIERY FINISHING EQUIPMENT

***Predominates* throughout the entire country**



APEX HOSIERY CO., PHILADELPHIA, PA.

MAY HOSIERY MILLS, INC., BURLINGTON, N. C.



ROLLINS HOSIERY MILLS, INC., DES MOINES, IA.

The greater percentage of mills is deriving the benefits of Paramount resources. They have the confidence that comes of Service and Performance. With the same reliance you, too, can delegate your finishing problems to us.

PARAMOUNT TEXTILE MACHINERY CO.

Manufacturers of

HOSIERY DRYING and SHAPING FORMS

Regular and Interchangeable Sizes » Steam and Hot Water Operation « Looper Attachments » Inspection Machines

Sales Office
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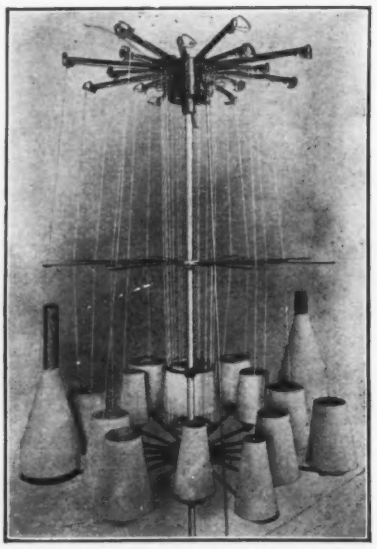
CHICAGO, ILLINOIS

Eastern Office
366 BROADWAY
NEW YORK, N. Y.

CRAWFORD

STOP MOTIONS



Crawford Regular Type Stop Motion.

Automatically stop any KNITTING MACHINE INSTANTLY

if yarn breaks, or other trouble appears—prevent holes, press-offs and needle breakage.

Three types:

Regular "B" Control "Elstop"

CRAWFORD MFG. COMPANY

New Brunswick, N. J.

PROMPT SERVICE RIGHT PRICES

BONE DRY
HOSIERY FINISHING BOARDS
THAT WORK ABSOLUTELY SMOOTH

Jos. T. Pearson & Sons Co.

1825 E. Boston Ave., Philadelphia, Pa.

Imported Needles . . .

for all types of Knitting Machines

▼

E. W. S. JASPER

71 MURRAY ST., NEW YORK, N. Y.

BArclay 7-1472

Between the Wire and the Needle

At Royersford the tempering of springbeard needles is an art — not a process: an art learned back in the Old Country fifty years ago, and guarded zealously from the inquisitive eyes of "outsiders."

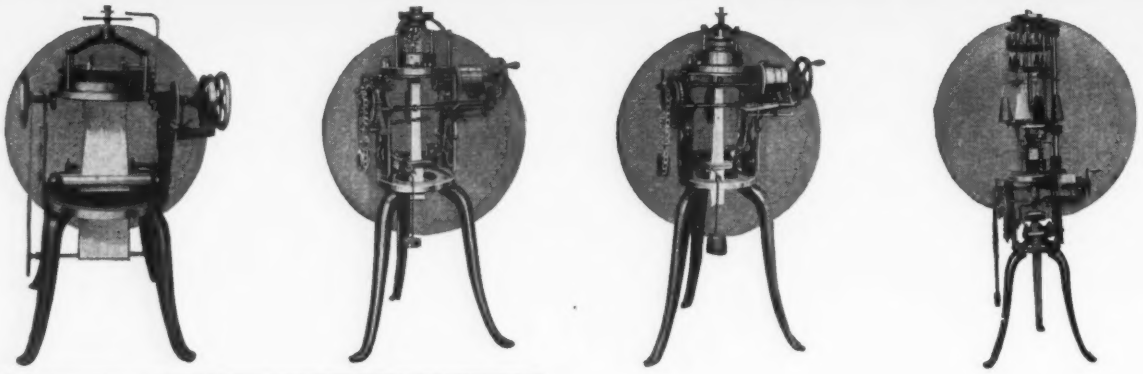
It isn't easy to do even when you know how. A trifle too soft, and an uneven fabric results. A fraction too hard, and it isn't long before a 7,500 dollar machine stands idle with broken needles to replace.

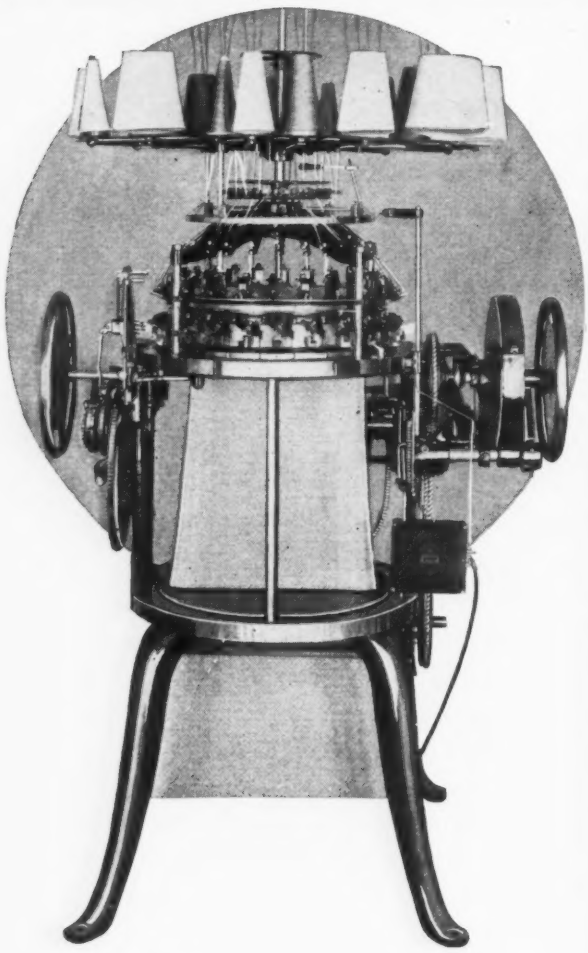
Think of the responsibility resting upon the microscopic shoulders of these tiny strands of steel! And think how neccessary it is to have them right — to a degree!

ROYERSFORD NEEDLE WORKS, INC., ROYERSFORD, PENNSYLVANIA

ROYERSFORD NEEDLES

STANDARD STEEL AND DURAKROME





Greater profits
Lower costs

CIRCULAR BRINTON KNITTING MACHINES

Knitting Machine

THOUSANDS of Brintons have had an enviable service record, for years, in many of the most successful mills in the country. Place your faith and hope of profits in Brinton Knitting Machines. They are dependable and reliable. Why install unknown quantities in your mill and inherit all kinds of unknown troubles?

Play safe—equip with Brinton's

Let us send you full information.

H. BRINTON COMPANY
3700 Kensington Avenue
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RIBBERS—
of every type.

JERSEY MACHINES
Plain and Fancy Stitches.

SWEATER MACHINES
Rib and Jersey types.

RIB BODY MACHINES
for underwear and bathing suits.

SPECIAL KNITTING MACHINES
from ¼" to 36".

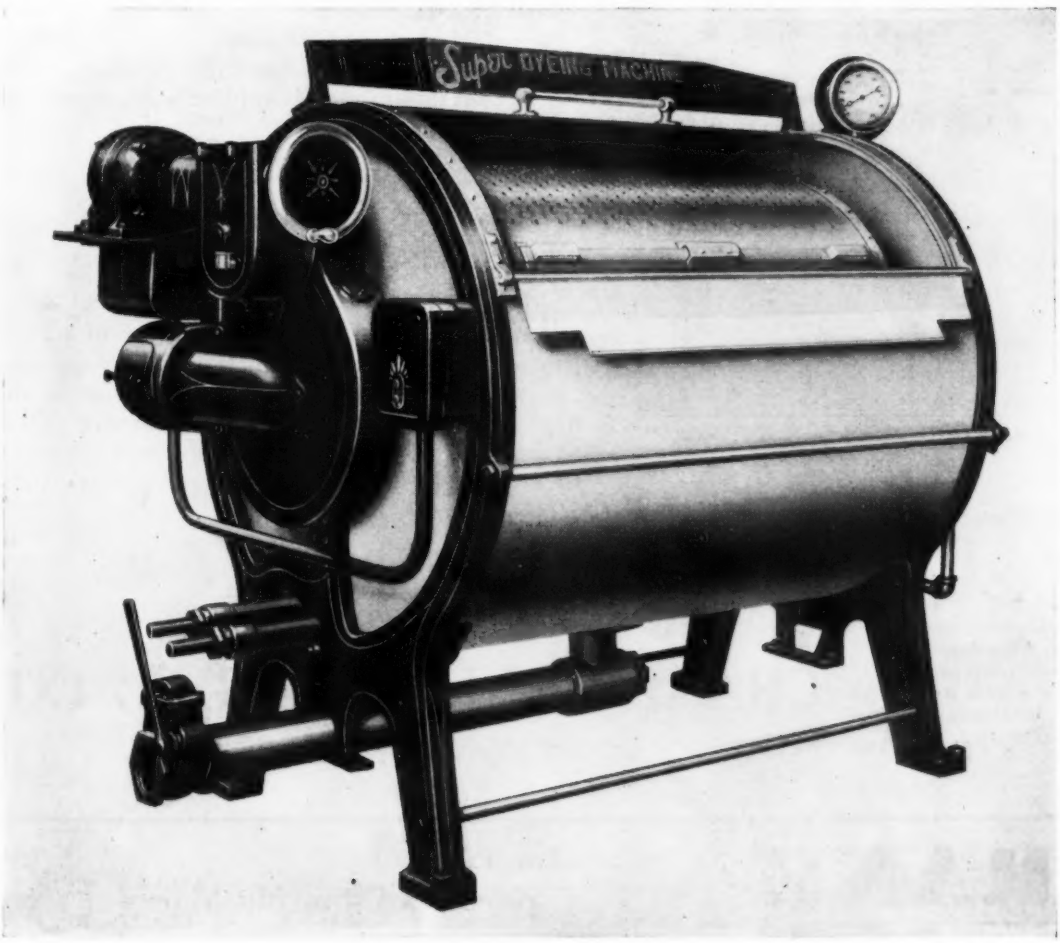
CIRCULAR BRINTON KNITTING MACHINES
of EVERY Kind for EVERY Purpose

The first big way it saves is on "SECONDS"

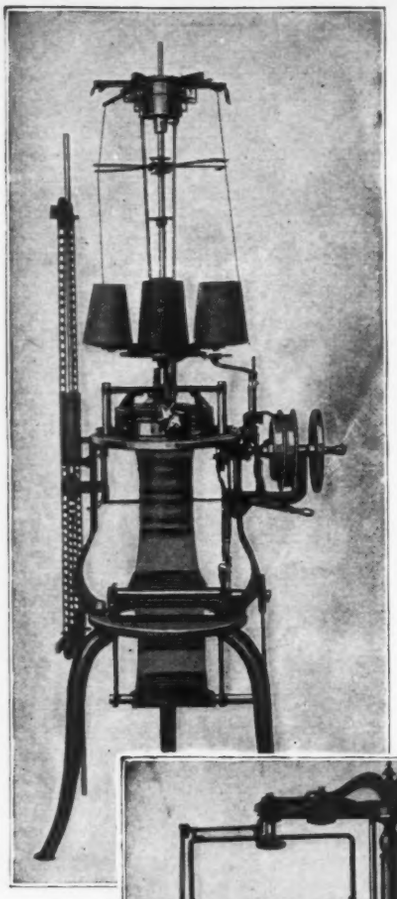
The American Monel Metal Super Rotary Hosiery Dyeing Machine keeps every drop of the dye liquor at work. Special "Baffle plates" insure that toes and heels, tops and seams are thoroughly penetrated. Level, high-quality dyeing on every class of silk, rayon and combination fiber . . . and the compact Super's silk-finish cylinder insures the sheerest hosiery against injury, and a reduction in the quantity of "seconds." There's a Super in a size for every requirement, for loads from 15 up to 350 pounds.

THE AMERICAN LAUNDRY MACHINERY COMPANY

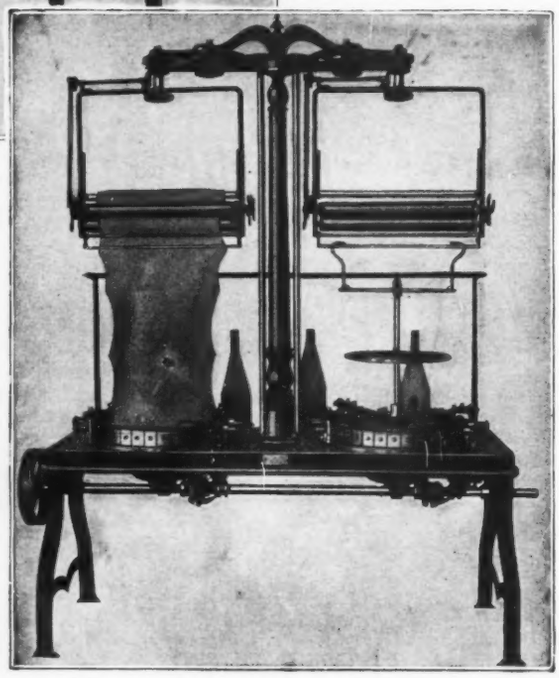
CINCINNATI, OHIO



The American 30 x 36" Monel Metal Super Rotary Hosiery Dyeing Machine, with direct geared motor drive. The Super saves so much, penetrates so perfectly, dyes every class of hosiery so economically. Easy to load, easy to unload—and easy to own! Investigate.



CRANE knitting machines are the logical answer to the problem of obsolescence . . . they combine modern speed . . . dependability . . . quality of goods . . . and low cost



Above

Improved Automatic 3-Colored Plain Striper

Made in sizes from $7\frac{5}{8}$ in. to $20\frac{5}{8}$ in. inclusive, of any desired gauge; these measurements being back to back of cylinder needles. The fabrics from this machine are used for bathing suits, theatricals and athletic goods. These machines are second to none on the market. The Crawford stop-motion is applied when requested.

At Left

Spring Needle Underwear Machine with Automatic Take-Up

This machine is made in sizes from 10 in. to 36 in. in diameter for the production of a great variety of fabrics of any desired gauge, the number of feeds depending on the size of the cylinders. Aside from the feeds for plain fabrics the stockinet, eiderdown and astrachan feeds are superior to any on the market.

Some Exclusive Crane Features

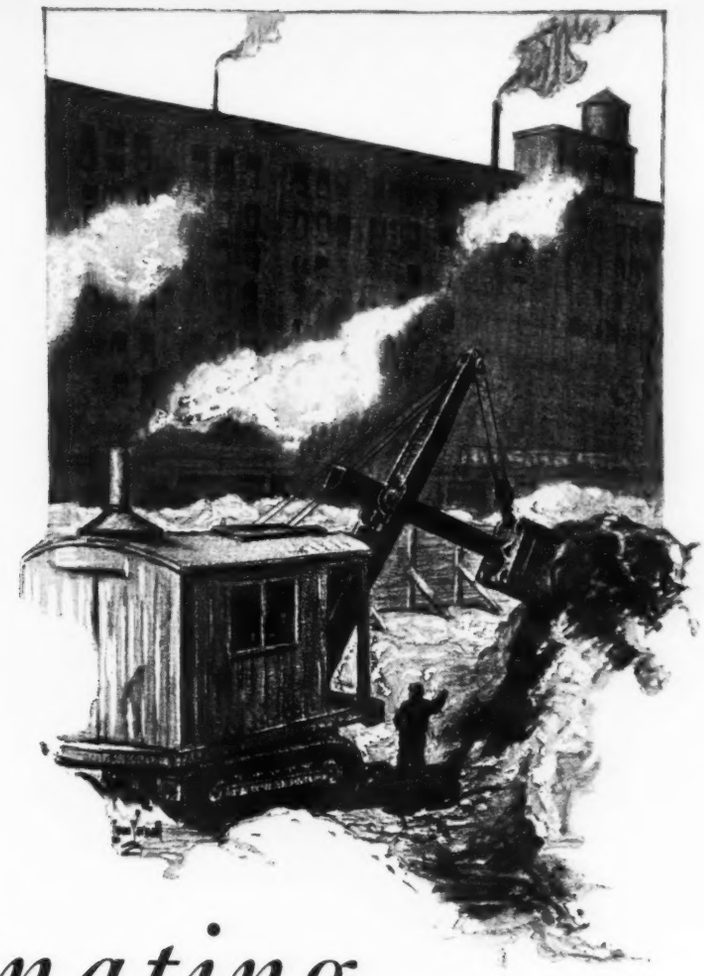
Patent removable hardened Wing Burr Wheels. Patent Thread Stop Motion can be fitted to all sizes of machines, and are specially adapted for making fine Jersey Cloth and Stockinet. Our flat machine is adapted for knitting collarettes.

Write for full details . . . better still, let us send a Crane representative

CRANE MANUFACTURING CO.

Lakeport, N. H.

CRANE *Spring and Latch* **Needle Knitting Machinery**



Eliminating Vibration

In a tall building, vibration is cut down by starting with the proper foundation.

In the Wildman Full-Fashioned Hosiery Machine, the base is cast in four solid sections which are machined and bolted and pinned together to give a rigid structure. The result is a marked freedom from vibration in the operation of the machine.

Write for further information.

WILDMAN MFG. CO.
Full-Fashioned Division
NORRISTOWN, PA.

WILDMAN
THE WORLD'S STANDARD

WILDMAN
FULL FASHIONED HOSIERY MACHINE

Evolution

It is interesting to note how closely the growth of the Full-Fashioned Hosiery Industry parallels developments in "Reading" Full-Fashioned Knitting Machines.

New—exclusive "Reading" patented Improvements in Design.

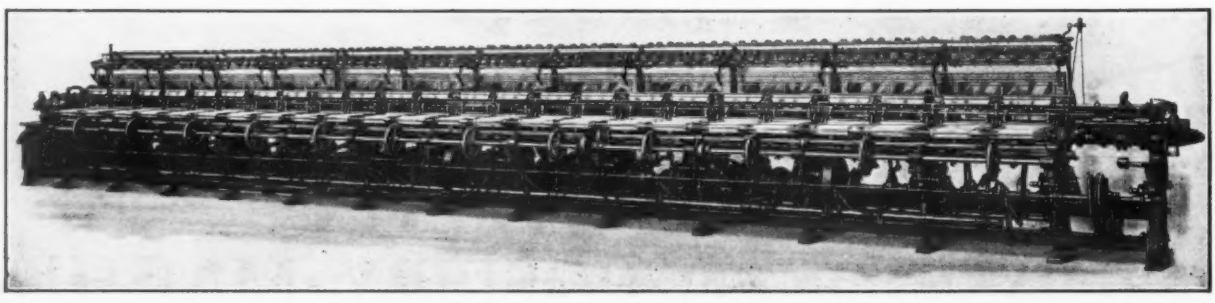
New—exclusive "Reading" patented Attachments for Mesh and Lace.

Twenty new exclusive "Reading" patents now pending.

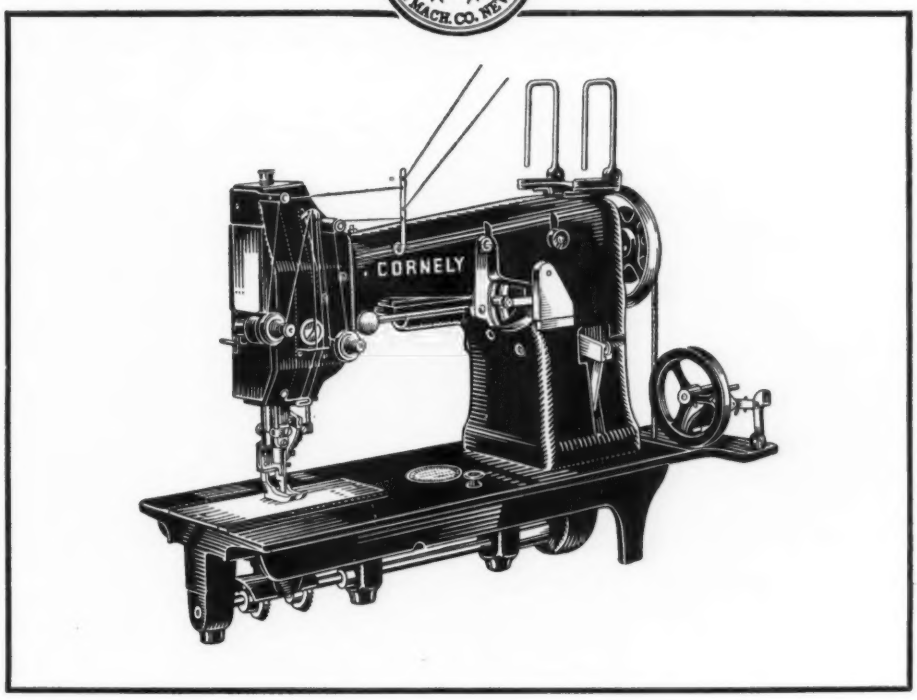
Detailed list on request.

Note: "Reading" Improvements are protected by patents and will be enforced against infringement.

TEXTILE MACHINE WORKS
Reading, Pa.



CORNELY TWO NEEDLE HEMSTITCH MACHINE



Speed and quality of production on all classes of work—underwear, dresses, blouses, table linens, sheets, pillow cases, etc. Makes holes of various sizes and may be had with or without picot edge cutting feature.

WILLCOX & GIBBS
SEWING MACHINE CO.
658 Broadway New York, N. Y., U. S. A.

The coupon is for your convenience should you wish samples of the work of this machine.

WILLCOX & GIBBS SEWING MACHINE CO.
Dept. **TW** 658 Broadway, New York, N. Y.

Gentlemen:

Please send me work samples from the new high-speed, two needle Cornely Hemstitch Machine.

Name .....

Company name.....

Address.....

.....

SEARCHLIGHT SECTION

POSITIONS WANTED

COTTON piece goods bleaching and finishing; broad technical and managerial experience, New England mills. Active responsibility desired at consistent salary with well organized concern. Reply Box 274, Palatine, Illinois.

MASTER mechanic on Tompkins crane spring needle machines. Experience on wool, cotton, rayon and lastex rubber. PW-788, Textile World, 330 West 42d St., New York City.

MASTER mechanic on Raschel and Ketten-Raschel machines. Would like to change present position. PW-782, Textile World, 330 West 42d St., New York.

OVERSEER woolen-worsted weaving. 12 years' experience. Son also available. Both experts automatics. Go anywhere, anytime. Best references. Felix Ramm, Box 19, Webster, Mass.

OVERSEER of weaving wishes to connect with some mill that is seeking to increase their production and efficiency at minimum cost on automatic looms, Crompton & Knowles or Draper Looms. Employed at the present time by one of the largest Woolen and Worsted manufacturers in the country as adviser and doing experimental work. PW-780, Textile World, 330 West 42d St., New York City.

POSITION wanted—American, married, age 48. Superintendent blanket mill or finisher in woolen mill. Experienced in all makes of machinery. Will go anywhere. Best of references. PW-789, Textile World, 330 West 42d St., New York City.

SITUATION wanted, A-1 fixer on Scott & Williams B-3, B-5 and K, Standard H, plain and mesh machines. First class man who can and will fix more machines than average fixer, and get production. Will go anywhere. F. Goodshaw, 1624 Womrath St., Phila.

WANTED

Silk Throwster Foreman

Capable of handling entire plant and all mechanical work on throwing machinery, including copping on Universals. Best references required. Applicants with large experience in manufacturing Crepe write full details, especially of mechanical experience. Married man preferred.

P-787, Textile World
330 West 42d Street, New York City

The Textile Department of the Pennsylvania Museum School of Industrial Art widely known as

Philadelphia Textile School

has provided instruction for over forty-nine years in all phases of the manufacture; design; color, including the chemistry of dyeing and printing; and sale of cottons, wool, worsted and silk yarns, fabrics and draperies.

Alumni representative in principal textile centers of every State and in Canada. Enroll now for September term. Day and Evening Courses. Catalogue.

E. W. FRANCE, *Director*
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Textile Products Representation

Manufacturers of dyes, soaps and allied products used in textile industry and who are interested in establishing a branch in strategic industrial center with experienced and practical man in charge are solicited. Unique proposition. Only well established firms desired. Correspondence strictly bona fide.

RA-786, Textile World
330 West 42d St., New York City

Men Wanted

We require a man in each community, FULL or SPARE time, as local representative. The work is dignified, permanent, and pays well. You simply recommend and call to the attention of business men and workers of all kinds or to fellow employees, the most complete line of business and technical books ever published. They find in our books the ready reference knowledge that gives them quick and valuable assistance in their daily work, and helps increase daily earnings or profits promptly and effectively. You can make $10 to $15 each week EXTRA quickly and easily showing our lists. No experience required. Complete equipment.

Write Tom Crawford, Dept. T.W.

McGRAW-HILL BOOK CO.
330 West 42d Street, New York City

For Sale—RIBBON PLANT

15—Crompton & Knowles motor driven Looms, with all the machinery to operate. This plant is running good. Lease. Price reasonable. All equipped for rayon. Address Ribbon Plant

BO-790, Textile World
330 West 42d Street, New York City

Superintendent Available

Superintendent or assistant by exceptionally competent man who has practical and technical mill experience and thoroughly conversant with all departments in the manufacture of narrow woven fabrics from raw stock to finished product, specialized in fabric construction and design. Formerly employed at Kaltenbach & Stephens, Inc., wishes permanent position with progressive concern in the United States or Canada. An interview or full details may be had by parties interested.

PW-791, Textile World
330 West 42d Street, New York City

Attention

COTTON MILLS

Have you considered having an experienced man in your employ to sell your **COTTON WASTE?**
For suggestions, address

SA-770, Textile World
330 West 42d Street, New York City

A Quick, Time-Saving, Dependable, Confidential Employment Service

for textile mill executives, stylers, salesmen, overseers, designers, second hands, fixers, etc. 'Phone, wire or write us about the men you need. We will supply you.

Charles P. Raymond Service, Inc.
36th Year
OLD SOUTH BUILDING
294 Washington Street, Boston, Mass.
Phone Liberty 6547

FOR SALE OR LEASE

This mill is in excellent condition, completely maintained and ready to run. You can start operating immediately. No expensive repairs.

FULL EQUIPMENT for manufacture of Worsted Yarns—Weaving or Knitting, including every operation, Scouring, Carding, Combing, Drawing, Spinning, Twisting, Winding, Reeling, Spooling.

MACHINERY AND MILL in splendid condition, 4,800 spinning spindles—24 frames.

LOW TAXES and plenty of local help thoroughly experienced.

WILL LEASE with option to buy or sell on very advantageous terms to responsible party.

Address all communications to

Springfield Worsted Mills
BORDENTOWN, N. J.

SPECIALS

COTTON MILL EQUIPMENT

MAGINNIS COTTON MILLS
NEW ORLEANS, LA.

29—Saco-Lowell 40" Cards, 27" Doffers, 12" Coilers, 80's Cylinder and 90's Doffer Sykes Clothing.

49—Whitin 40" Cards, 27" Doffers, 12" Coilers Sykes Clothing.

144—Deliveries Whitin Drawing, Model H, 6 deliveries per frame, metallic top rolls. Erman top clearers, (1925).

52—Deliveries Saco-Lowell drawing 4 deliveries per frame, metallic top rolls, Erman top clearers, (1920-1924).

2—Woonsocket 108 spindle 10x5 intermediate frames. Campbell ball bearing top roll, chain drive.

2—Saco-Lowell 112 spindle, 10x5 intermediate frames, (1925).

6—H & B American Machine Co. 152 spindle 8x4 speeders, (1924).

2—Saco-Lowell 152 spindle 8x4 speeders. (1925).

4—Woonsocket 152 spindle 8x4 speeders.

2—Saco-Lowell 128 spindle 8x4 speeders.

2—Terrell-Utsman single acting Filling Quill Cleaners.

2—Foster Model 40—12 spindle Precise Winder.

1—Brownell 64 spindle Twister, 9" space, 7" traverse.

3—Saco-Lowell Slasher, one 10x56 and one 84x56 cylinder Sarco size box, temp. control.

2—Barber-Colman size No. 2 style SS Power Warp Drawing Machines, serial No. 48 and No. 104 with regular equipment.

1—Barber-Colman size No. 2, style SS Power Warp Drawing Machines, serial No. 602 with auto bell pattern device.

2—Barber-Colman size 4E Barber Warp Tying Machine, No. 557, No. 937 knotter CKC with regular equipment.

1—Cocker Machine & Foundry Co. 7 compartment, 20 warp indigo warp dyeing equipment with 50 hp. G.E. motor.

26—Draper Model E Looms, 48" B.S. 45" reed space, two bank warp stop motion, Lacey top, (1914).

200—Draper Model E Looms, 48" B.S. 45" reed space, Lacey top, (1916).

100—Hopedale Looms, 48" B.S. 46½" reed space, three bank warp stop motion, Bartlett Let off, (1922).

2—Textile Machine Co.'s 1923 and 1925 Model, 30 foot straight tenter, Kay & Foxwell guides.

1—H. W. Butterworth 42", 3 roll Finishing Calender, 10½ center hot roll 18" top and bottom composition rolls.

1—Textile Machine Co.'s 40", 4 roll Calender, 14" iron bottom roll, 18" second and third combination cotton and husk rolls, 16" top hot roll.

2—Curtis & Marble 1926 Model, 40" Special Cotton Brushing and Shearing Machine, Type C.

1—Curtis & Marble 1923 Model, 40" Special Cotton Brushing Machine.

1—Economy Electric Power Baler, No. 154-FN, 26"x52"x54", 220 volt, 3 hp. motor.

1—Complete Mop Yarn Equipment Roller and Machine Shop Equipment.

For further information and prices wire, phone or write our

Representative S. B. SCHWARTZ
MAGINNIS COTTON MILLS
NEW ORLEANS, LA.

161 DEVONSHIRE ST.
BOSTON
Liberty 5943

WORSTED EQUIPMENT

1—Worsted Comb, ball bearing compellators, large circle, 48¾", small circle 16", 28 and 30 pins, center dauber, Boldy & Son, Ltd.,.....$400.00

3—Worsted Combs, large circle 48¾", small circle 16", 28 and 30 pins, center daubers, James Smith & Son, each $1250.00

1—Double Can Preparing Gill Box, single screws, ⅞" pitch, 21 fallers, 14 up, 7 down, 18" setover, 5 pins per inch, bottom front roller 3", top front roller 6". Bottom back roller 3", top back roller 6". Prince Smith,.....$125.00

1—Preparing Gill Box, Double Screws, ⅞" pitch, 24 fallers, 16 up, 8 down, 10 pins per inch, 1" setover, front bottom roller 2½", back 4", single can box. Hall & Steele.....$125.00

1—Comb Punch Ball Winder, Taylor Wadsworth Co.....$75.00

1—Double Can Finishing Gill Box, double screws, ½" pitch, 18 fallers, 12 up, 6 down, 12 pins per inch, 12" set over, bottom front roll 2" top front roll 2½", bottom back roll 3", top back roll 3½", Prince Smith.....$125.00

1—Single Can Gill Box, 18 fallers, 18¾" long, 10 pins per inch, back rolls, single top and bottom, spring weighed, Saco-Lowell.....$200.00

1—Finishing Gill Box, Single Bill Gill box, ⅞" pitch, ⅞" fallers; 18 fallers, 12 up, 6 down, 13 pins per inch, double screw top; back rolls 3", bottom back rolls 3", top front rolls 2½", bottom front rolls 1½", Saco-Lowell.....$200.00

1—Single Can Finishing Gill Box, ⅞" pitch, 18 fallers, 12 up, 6 down, 13 pins per inch, double screw, top front rolls 3", bottom front rolls 2", top back rolls 3", bottom back rolls, 3", Saco-Lowell.....$200.00

ABEECO MILL, Incorporated
220 Yonkers Ave., YONKERS, N. Y.

1—Double Can Gill Box, No. 1882, low front rolls 2½", top front 3½", low back 3", top back 3½", 18 fallers, 18⅛", Saco-Lowell Shops.

1—Emulsion Pan Complete—Saco-Lowell Shops.

1—2 spindle Gill Box, No. 1883, low front rolls, 2½" top from 3½", 18 fallers, 22⅝" long, 12 pins per inch.

1—4 spindle Drawing Box, No. 1065, 1⅜", pitch, 15" ratch, creel for 24 bobbins, chain drive. Saco-Lowell Shops.

1—6 spindle Drawing Box, No. 1066, 12⅜" pitch, 15" ratch, creel for 30 bobbins, chain drive. Saco-Lowell Shops.

1—10 spindle Drawing Box, No. 1067, 10¼" pitch, 15" ratch, creel for 40 bobbins, chain drive. Saco-Lowell Shops.

1—32 spindle Danby Reducers, No. 2142, 3, 7¼" pitch, 5½" diameter. Saco-Lowell Shops.

2—200 spindle Cap Spinning Frames, No. 2617, 2618, 3½" pitch, 11½" ratch, 5' frame, end top back, rolls, 2¾" diameter, chain drive.

4—36 spindle Dandy Rovers, No. 2144, 5/6/7, 5" pitch, 14" ratch, 7" x 4" bobbins, Saco-Lowell Shops.

1—200 spindle Cap Spinning Frame, No. 2619, 3½" pitch, 11½" ratch, 5' frame end, top back rolls, 2¾" diam., chain drive. Saco-Lowell Shops.

2—200 spindle Cap Spinning Frame, No. 2620, 1, 3½" pitch, 11½" ratch, 5' frame end. Chain drive. Saco-Lowell Shops.

1—200 spindle Cap Spinning Frame, No. 2622, 3½" pitch, 11½" ratch, 5' frame end, chain drive. Saco-Lowell Shops.

4—50 spindle Reels, 3½" gauge, 54x72" swift, cross traverse motion. Lindsay Hyde & Co.

Write, Wire or Telephone

HM. McCORD
100 EAST 42nd STREET
NEW YORK CITY
Ashland 4-0345

SILK MILL EQUIPMENT

3—64 Spindle Eastwood Winders.

3—72 Spindle Atwood Winders.

15—80 Spindle Atwood Winders.

2—104 Spindle 5B Spinners.

38—192 Spindle Atwood Double Deck Spinners direct connected 440 volt, 3 phase 60 cycle motors.

12—92 spindle Atwood single deck Spinners.

No. 90 Universal Quillers, with either Swifts, Overhead Attachments, Unrolling Attachments or Bunch Builders.

No. 50 Universal Winders for Coning, Tubing, Franklin Winding, and Multiple Wind.

2—Royle Repeaters, French Index Paterson Peg.

1—Royle Card Lacer.

1—Royle Foot Power Piano Machine.

50—82" C & K 4x4 Looms, 1926, with 220 volt, 3 phase, 60 cycle motors. Gem heads.

4—Sipp 72" 8-yard low beam Warpers with motors.

MISCELLANEOUS EQUIPMENT

5—No. 12—100 spindle Foster Skein to tube Winders.

14—Carrier S-21, 5,000 C.F.M. unit type Humidifiers with 2—220 volts, 3 phase Motors.

4—New Tunnar 56" NewVelvet Looms

4—New Tunnar 60" New Heavy Duty Plush Looms.

4—Cottage Steamers, 10x8 with 6x4 doors.

4—Emerson Conditioning Ovens. Lot of Dexter Steel Lockers.

2—P & S Raw Stock Drying Machines.

Lot of Cooper Hewitt Lights, 110 and 220 volts.

Hermas two- and four-blade Shearing Machines.

COMMERCIAL TRUST BLDG.
PHILADELPHIA
Rittenhouse 2185

COULD YOU USE ANY OF THIS MACHINERY AT A PRICE

CARDING, SPINNING AND PICKING

1—48-in. Sykes Mixing Picker.
1—48-in. C. & M. Mixing Picker.
1—48-in. Sargent Mixing Picker.
1—17x30 Dodge Rag Picker.
11—Prince Smith 200 Sp. Cap Twisters.
20—Prince Smith 168 Sp. Cap trap Twisters.
10—Prince Smith 40 Sp. flyer roving Frames.
5—Prince Smith 4 Sp. Drawing Boxes.
7—Sets of 60-in.x60-in. D. & F. all iron cards.
3—Sets of 48-in.x60-in. D. & F. all iron cards.
1—48-in. D. & F. Fearnaught Mixing Picker.
1—Sargent Yarn Conditioning Machine.
3—Sets of 60x48-in. D. & F. Cards.
3—Sets of 48x60 in. D. & F. Cards.
1—Set of 48x48-in. D. & F. Cards.
9—Sets of D. & F. Mules 2 to 2½-in. gauge.
6—Schofield 18x30-in. Rag Pickers.
1—Hunter Rotary Stock Dryer.
1—Sargent Raw Stock Dryer.
2—90-in. Hunter Blamire Lappers.
1—60-in. D. & F. Floor Grinder.
1—60-in. Roy Traverse Grinder.
1—48 in. Roy Traverse Grinder.

WARPING AND WINDING MACHINERY

1—Saco Lowell Worsted Warp Slasher.
3—Altemus Warping Machines.
3—Altemus double gear Beaming Frames.
2—Altemus 4 part Warp Splitters.
8—Universal No. 90 for Bobbins or Quills.
30—Universal No. 50 for Cones or Tubes.
5—O. Lever Bobbin or Quill Winders.

WARPING AND WINDING MACHINERY (Continued)

10—Whitin Long Chain Quillers.
1—J. & B. 96 Sp. Jack Winder.
1—F. & J. 4½-in. ring Plain Twister.
1—12 Drum 6-in. Spooler.
3—32 Sp. O. Lever Cop Winders.
1—72 Sp. O. Lever Cop Winder.

WEAVING AND FINISHING MACHINERY

8—C. & K. 130-in. Looms, 25 Har., 1x1 Box.
6—C. & K. 110-in. Looms, 25 Har., 3x3 Box.
30—C. & K. 100-in. Looms, 25 Har., 3x3 Box.
10—C. & K. 92-in. Looms, 25 Har., 4x4 Box.
30—C. & K. 82-in. Looms, 25 Har., 4x4 Box.
100—C. & K. 82-in. Looms, 20 Har., 2x2 Box, motor drive, inter. type.
20—C. & K. 72-in. Looms, 20 Har., 4x4 Box.
20—C. & K. 72-in. Looms for Upholstery.
2—C. & K. 48-in. Sample Looms, 30 Harness.
2—66-in. Model B Double Shears.
3—66-in. P. & W. Single Shears.
1—36-in. P. & W. Single Shear.
1—J. E. Windle Folding, Rolling and Measurer.
1—Voelker 66-in. Rotary Cloth Press.
1—100-in. Gessner Century Cloth Press.
1—D. Gessner 66-in. Heavy Duty Cloth Press.
2—66-in. Heathcote 120-yd. Cloth Dryers.
2—C. & M. Doubling and Tacking Machines.
1—66-in. Sjostrom Conditioning Machine.
1—6/4 P. & W. Doubling, Rolling and Measurer.
1—80-in. C. & M. 2 cyl. Brush.
1—Woonsocket 86-in. D. A. Napper, 36 roll.
1—Davis & Furber 20 roll D. A. Napper.

WEAVING AND FINISHING MACHINERY (Continued)

2—66-in. Kenyon Chinchilla Machines.
2—56 stick K. & W. Skein Dyeing Machines.
1—28 stick K. & W. Skein Dyeing Machine.
30—Smith Mill Piece Sewing Machines.
1—D. & F. 24 roll Double Acting Napper.
1—90-in. Woonsocket 36 roll Double Acting Napper.
1—Knit Goods Turning and Folding Machine.
1—Voelker 66-in. Dewing Machine.
3—Hussong 250 lb. Motor Driven Dyeing Machines.
1—Warp Dyeing Machine, 750 lb. capacity.
1—Proctor & Schwartz 1000 lb. dryer, 3 racks.
1—Sjostrom 70-in. Cloth Conditioning Machine.
1—C. & M. 72-in. Wetting Out Machine.
1—3 Drum Narrow Fabric Finishing Machine, with singeing and sizing attachment and calender.
1—P. & W. 4-cylinder Brusher and Sander.
1—Hurricane 3-Section Loop Dryer.
1—C. & M. 6 Burner Gas Singer.
3—80-in. P. & W. Cloth Perches.
1—48-in. Tolhurst Extractor.
1—42-in. Fletcher Extractor.
5—International Time Clocks.
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1—Two Card set 48-in. Whitin **Roller Cards.**
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1—Knowles 48-in. **Pattern Loom.**
4—92-in. **Warping Mills.**
4—J. & B. **Mules,** late pattern.
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1—6/4 P. & W. **Measuring, Folding and Winding Machine.**
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2—6/4 **Cloth Presses.**
2—48-in. **Extractors.**
1—78-in. **Napper.**
2—6/4—**Teasel Gigs.**
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100,000 linear feet rebuilt leather belting.
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12—No. 90 Universal Coppers, with bunch builders. Silk.
Universal No. 90 Coppers.
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60 spdl. Foster, Model 12.
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Atwood Spinners, single deck.
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1—Set of 5 H. W. Butterworth 23x50½ in copper tinned Dry Cans.
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1—500-lb. Franklin Raw Stock Dyeing Machine.
1—60-in. Kenyon Return Tenter Dryer.
1—6-ft. Sargent Cone Duster.
1—60-in. Warp Dyeing Machine, 5 bowl.
1—Philadelphia Textile Mchy. Co. 2-truck Yarn Dryer.
1—72 stick Bailey Skein Dryer.
1—Giles 10 stick Skein Dyeing Machine.
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1—250 lb. Klauder Weldon Skein Yarn Dyeing Machine.
2—40 stick Klauder Weldon Skein Dyeing Machines.
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1—26-in. S&U steam engine driven copper basket Extractor.
1—40-in. Tolhurst copper basket self-balancing Extractor.
1—60-in. C&M Vacuum Extractor.
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3—60-in. Jas. Smith 3-cylinder Garnetts.
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1—16-in. Leighton 9 cut jersey Knitter.
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45—60-in. C&K 2x2 Plush Looms.
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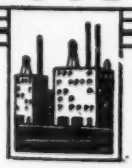

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Dr. Copeland *speaks on textile cost systems . . . . .*

is one of your traditions.
On the matter of costs, so far as I can learn, most of the cotton mills have persisted in using an obviously unsound method of estimating costs.

Reprinted from Textile World May 28, 1932

THE above is an excerpt from Dr. Copeland's address before the Southern Cotton Manufacturers at Atlanta. Dr. Copeland, famous professor and director of the Harvard Business School, points out the weak spots in the industry's structure. *And the methods for determining costs in most mills come in for sharp criticism.*

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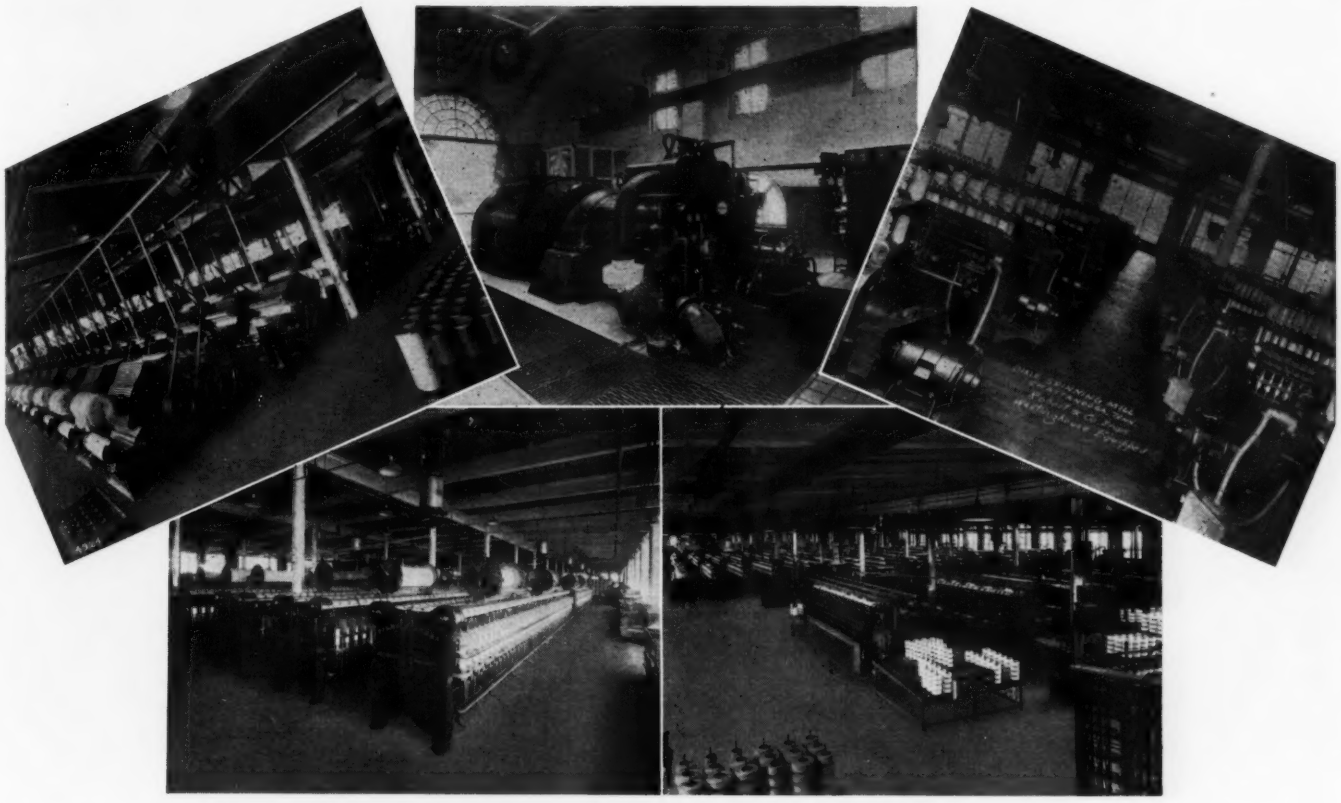

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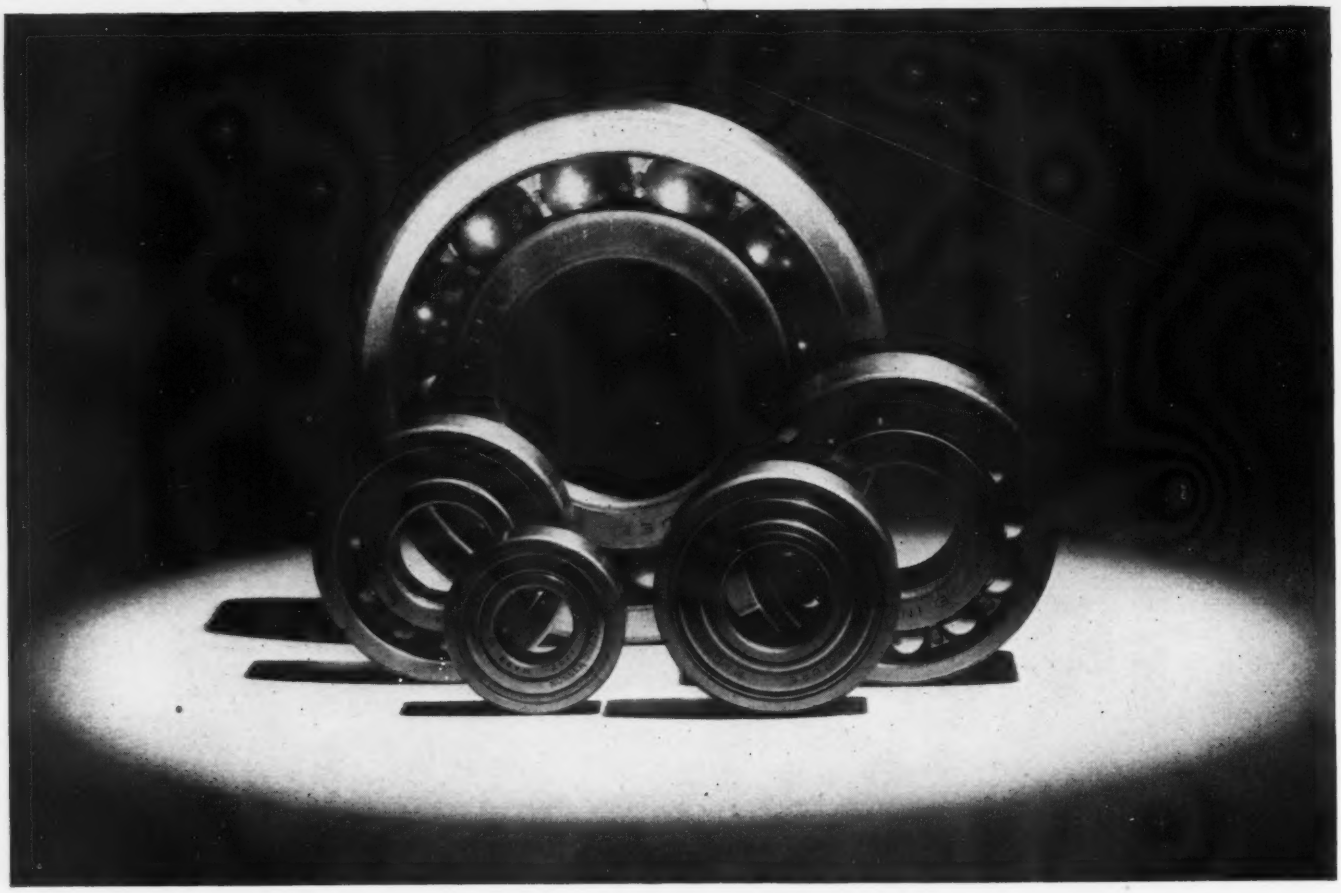

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New Departure Ball Bearings require as high as 149 separate operations, 25,558 precision gauges, maintaining as a unit of measurement 1/10-thousandth of an inch.

New Departure steel balls do not vary in sphericity more than .000004".

Master standards are kept in a constant temperature room, checked yearly in Washington; shop standards pass through this room for the O. K. of skilled craftsmen.

The New Departure Mfg. Co., Bristol, Conn.; Detroit, Chicago, San Francisco.

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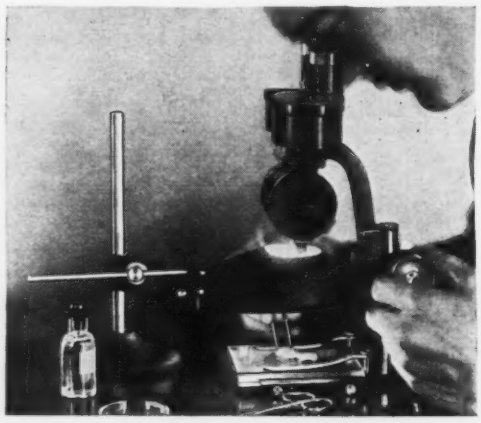
The Wide Field Tube (at left) is a time saver in routine inspection work. For the determination of weave, identification of mixtures used, the quality of individual fibre, etc., this microscope with its long working distance has many uses. Can be carried in the pocket if desired or set up on tripod as shown. Available in powers 6.1X, 10X, 15X and 20X. Low in price.



The Wide Field Binocular Microscope (at right) with 5 interchangeable objectives gives a stereoscopic effect that shows the specimen in three dimensions. Especially valuable for studying carpet, knitted and lace structures, etc., silks and other fine fabrics, and for determining roughly the twist of yarn. Image is erect, not inverted and reversed, as in the usual microscope. Can be used in the factory for examination of knitting needles and sinkers, heddles and reed wires. Range of magnification from 7 to 87X.

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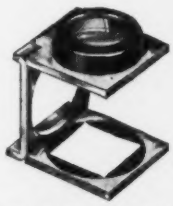
These powerful little glasses give high magnification and embrace a large angle of view. Available in magnifications from 7.5X to 20X.



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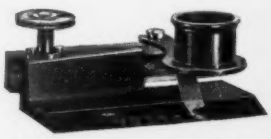

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This portable pick counter after the design of Alfred Suter is designed for use anywhere. It has a wider field than is possible with ordinary pocket counters. Lens and pointer are moved by rack and pinion. Magnifies 7X.

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